'It's Important to Know In Time'

Member Associated Business Papers, Inc.; Audit Bureau of Circulations.

The Newspaper of the Industry

Air Conditioning & REFRIGERATION NEWS

Production Tools for Victory

AN INTERNATIONAL INSTITUTION ★ SUBSCRIBERS ALL OVER THE WORLD ★

Technical Governmental

'Written To Be Read on Arrival'

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Inside Dope

By George F. Taubeneck

Refrigeration May Get Top Priority
Home-Front Repairs
Readers Who Write
Ice-o-tene
Hero Honored
More G.I. Mail
Improvised Freezer

Refrigeration May Get Top Priority

After conclusion of an extensive ur of the Pacific fighting arenas, group from the Quartermaster's adquarters is said to have reported at top priority should be given for oduction and procurement of many pes of refrigeration equipment.

Because of the distances involved the Pacific supply lines, larger rminal and transit storage facilities e needed. Too, wherever we go e must create our own—unlike the tuation in Europe, where existing ld storage warehouses can often taken over intact.

Furthermore, much of the Pacific heater" has a darned hot climate—here foods and medical supplies teriorate in a matter of hours if t thoroughly refrigerated, and here refrigeration equipment wears t faster than it does in the United tates or in Europe.

Result of these deductions may ean a mighty busy refrigeration dustry for many, many months to me—with "reconversion" postponed ill further.

Home-Front Repairs

Without a doubt, this coming mmer will see the greatest strain refrigeration equipment now in is country that we have ever perienced.

The growing shortage of refrigera-on service men alarms nearly every-e. And with new equipment and pair parts harder and harder to t. . . .

Readers Who Write

Nothing we print seems to stir bscribers so much as critical letters itten to the editor. Those we re-ve are published; and when they e, the resulting mail is interesting deed.

This mail is divided. Some writers y "Amen!" to the sentiments ex-essed by the critical letter. Many ers blister the hide off the fellow o got up on his high horse and d us off.

Recent case in point was the letter m Donald *L.* Nelson printed in this umn recently. To us, this letter s pretty funny. We thought most bscribers would be amused, too. t plenty weren't. Some were ensed as all get out.

Particularly sore were the dozens subscribers who thought Donald Nelson, former chairman of the r Production Board, had written

All this leads up to another gue-in-cheek criticism of our rtcomings sent in by Richard S. wson, handsome and personable neral Sales Manager of Alco lve Co., St. Louis.

Please, folks, don't get sore at k over this letter. He's only ding.

Ice-o-tene

Leave us quote:

Editor:

Your usually alert publication has led miserably in its duty to the ustry.

While your columns complacently ttle of postwar plans, new designs, ustry news, etc.—while you sit in r resplendent editorial offices oking 10 cent (?) cigars—while are sitting idly by—Mandrake Magician is showing us some-

(Concluded on Page 9, Column 1)

Advisory Group Hears of Probable Cuts in Production, Changes in L-38

WASHINGTON, D. C. — Problems of materials, manpower, fractional horsepower motors, condensing units, "Freon," and proposed amendments to Order L-38, the general refrigeration production and distribution order, were discussed at a recent meeting of the General Refrigeration Industry Advisory Committee, the War Production Board reports.

William M. Haile, director of WPB's General Industrial Equipment Division, discussed the "must" programs that the industry is being called upon to meet at the present time, and indicated that they may have a direct effect on refrigeration equipment production for essential civilian uses.

Both materials and manpower shortages have been brought about as a result of the need for meeting these programs, Mr. Haile said. He pointed out that both of these factors will affect production of refrigeration items in certain areas.

In addition, he said, the manpower shortage will affect the operations of dealers, jobbers, service men, and repair shops, all of which are a part of the general refrigeration industry. The manpower situation in the industry has been partly relieved as a result of a War Manpower Commission program under which, WMC said, 10,000 workers have been trained.

WMC has officially notified WPB's Office of Manpower Requirements that production of industrial and commercial refrigeration and air conditioning machinery and equipment is included in Group 15, Production of Industrial and Agricultural Equipment, of WMC's List of Essential Activities, L. F. Buckley of WPB's Office of Manpower Requirements told the group.

This means, according to the letter of notification, that certain workers engaged in the production of refrigeration equipment are eligible for deferments, depending upon local conditions and availability of replacement workers in specific areas.

Mr. Buckley also discussed WPB's Office of Manpower Requirements pamphlet, "Advice to Employers on Selective Service," pointing out that industry members should acquaint themselves with the procedures outlined therein.

Supplies of controlled materials that will be available for production of refrigeration equipment during the second quarter are approximately 15% below first quarter supplies,

(Concluded on Page 32, Column 1)

Fedders Family May Sell Stock Interest

BUFFALO—Negotiations are reported underway for the sale of the Fedders' family holdings of common stock in Fedders Mfg. Co., producer of heat transfer equipment, to Frank J. Quigan of Maspeth, Long Island, New York.

Mr. Quigan is chairman of the board of the Frank J. Quigan Co., manufacturer of handbag frames.

The stock involved in the negotiations is that owned by President Theodore C. Fedders, Warren E. Detenbeck, executive vice president and secretary, Louise Detenbeck, Christ Fedders, and Theodore W. Detenbeck.

While the amount of stock involved in the transaction does not represent control of the company, there are rumors that Mr. Quigan had acquired enough stock through buying in the open market to give him control. Brokerage houses in Buffalo said action of the company's stock this year indicated some strong buying, apparently by interests who bought for the purpose of obtaining control.

Prior to the war, the Fedders company manufactured heat transfer equipment for the refrigeration, heating, and automotive industries, and flow control valves for the refrigeration industry. In 1942, manufacture of most of the company's standard products ceased, and production facilities thereafter were devoted almost entirely to war production. About a year ago the company began to produce newly designed products such as electric water coolers.

Frank Purcell Heads Tecumseh Service

TECUMSEH, Mich. — Frank G. Purcell, formerly with Frigidaire, has joined Tecumseh Products Co. here as service manager, the company announces.

Mr. Purcell joined Frigidaire in 1926 after being graduated from Purdue University. Until his present appointment Mr. Purcell had been with Frigidaire continuously except for one year as assistant service manager of Gibson Refrigerator Co., Greenville, Mich.

Backed by broad experience in engineering and service work, Mr. Purcell in recent years has concentrated on wholesale, marine, and railway refrigeration.

M. E. Miller Heads Firm Planning To Enter Refrigeration Field

PHILADELPHIA — Recently reorganized with Marion E. "Dusty" Miller as president, and E. Bockmeyer as vice president, the Electric Power Equipment Corp. of this city is planning to enter the refrigeration field as quickly as conditions permit.

The company has been producing precision electrical products for more than 30 years, and at present is operating two plants on ordnance work. Plans are ready for the quick conversion of one entire plant for refrigeration products, it is said.

Mr. Miller joined Electric Power Equipment Corp. after having launched the big production program of the Philadelphia Ordnance District, Army Service Forces, where he served as chief of production. Many of the production plans and controls which he devised were said to have been adopted by other ordnance districts. Before getting into ordnance work, Mr. Miller had been general manager of Peerless of America, Inc.

Mr. Bockmeyer was formerly manager of the New York plant of Peerless of America.

Frigidaire Promotes Wright & Williams

DAYTON, Ohio—Robert C. Wright has been named manager of commercial advertising, and Insco Williams becomes manager of displays and exhibits for Frigidaire Division, General Motors Corp., announces James F. Pedder, advertising manager.

Formerly commercial advertising specialist, Mr. Wright has been with Frigidaire for 18 years, chiefly in advertising activities related to commercial refrigeration and air conditioning.

Mr. Williams has also been with Frigidaire for 18 years, specializing in the creation of displays.

Detroit Lub. Promotes Paltz and Hohmeyer

DETROIT—R. S. Paltz has been appointed advertising manager of Detroit Lubricator Co., succeeding W. H. Hohmeyer who becomes manager of the company's oil burner controls division, announces E. J. Doucet, general sales manager.

OPA Rules on Dealer's Part in Price Increases

WASHINGTON, D. C.—Standards to be used by the Office of Price Administration in determining whether wholesalers and retailers will be required to absorb their suppliers' price increases instead of passing them on to consumers have been outlined by James F. Brownlee, deputy administrator for price.

Mr. Brownlee's statement of policy has been mailed to representatives of the distributive trades who have discussed cost absorption with OPA at recent meetings. This group includes trade association executives and leaders in the department store, variety, mail order, shoe, dry goods, furniture, and hardware fields. The policy applies to retailers and wholesalers dealing in all commodities, however.

Since OPA first was organized, retailers and wholesalers have been required from time to time to absorb price increases granted at the manufacturing level. Not until recently, however, have standards been worked out for the distributive trades in as much detail as those applied to manufacturers.

The chief problem at the recent conferences between OPA and trade representatives was to develop a method of measuring the amount of increase in suppliers' prices that retailers and wholesalers could be expected to absorb. Suggestions were exchanged with the trade, and the latter's proposals carefully considered, OPA said.

Mr. Brownlee's statement represents OPA's reaction to these proposals and describes OPA's present policy on the subject of cost absorption in the distributive trades. The statement—

Confirms OPA's policy of permitting ceiling price increases at the

(Continued on Page 2, Column 3)

IN THIS ISSUE

Many surveys have indicated that consumers plan to buy immense quantities of goods, including appliances, after the war, but a survey made recently in Jackson, Miss., reveals that appliance dealers there are more optimistic about sales than the consumers themselves. Does this mean that dealers may wind up with a top-heavy inventory? See Page 8.

Besides all the bother of worrying about ration points, menu planning, and food shortages, the woman who heads 56 government cafeterias in and around Washington, D. C., also becomes annoyed with the shortcomings of commercial refrigerators. So, she told the Baltimore-Washington A.S.R.E. what's wrong and what she'd like to see done about it. Pages 18, 19.

It is generally known that the high temperatures and high humidities of the tropics make extra work for refrigeration equipment. A detailed discussion of just what happens to mechanical cooling equipment, particularly when the Army sets up bases in the South Pacific theater, is presented in this issue, starting on page 20. Authors of this study are two Army technicians.

It's so cold up in the stratosphere that up to now the aviation industry has been chiefly concerned with providing heat for airplanes. But a young engineer from Curtiss-Wright predicts that if the speed of airplanes continues to increase, it may be necessary to install cooling to overcome heat from friction created by high speeds. Pages 14, 15.

'Servicing To Be Industry's Job Through 1945'

Speakers at Montreal See Little Hope For Resumption of Sales

MONTREAL, Canada — Dealers, contractors and service engineers in the United States and Canada have a considerable period ahead of them, possibly the balance of 1945 at least, in which their primary concern will be the maintenance of existing equipment, rather than selling and installing new equipment.

Two men who could speak with authority gave this message to the more than 400 members of the industry who attended the annual conference of the Interprovincial Association of R.S.E.S., held March 18 and 19 at the Mount Royal hotel in Montreal.

Wayne Jordan of Liquid Carbonic Corp., digressed from the technical talk which he was giving at one of the conference sessions to report on what he had learned at the March 14 meeting of the General Refrigeration Industry Advisory Committee of WPB, of which he is a member:

Reports on the technical, business, and social sessions of the annual conference of the Interprovincial Association of R.S.E.S., held at Montreal, will be published in subsequent issues of Air Conditioning & Refrigeration News

"The temper of WPB today is that there is only one job ahead of us—to win the war.

"The Advisory Committee has been reduced from 22 members to eight, and for the present it will function only to advise WPB on how the refrigeration industry can best operate to win the war, not to devise ways and means of getting back into the manufacture of civilian goods.

"For the rest of this year, at least, I think our big job will be to keep existing equipment in operation. There will be very little new production of civilian equipment, even in 'spot' authorizations, because many materials will be short," Mr. Jordan concluded.

C. M. Lowe, Administrator of priorities for the refrigeration industry in Canada, indicated that much the same situation would hold

(Concluded on Page 4, Column 4)

Refrigerated Container Holds Possibilities For Export Trade

NORTH CHICAGO, Ill.—New type of lightweight shipping container developed by Deepfreeze Division of Motor Products Corp. is believed by officials of that company to offer the possibility of revolutionizing cross-country and even export shipment of frozen meat.

As described by Willard Morrison, Deepfreeze general manager, the shipping container is made of Dow metal and weighs only 33 pounds It will provide space for 150 pounds of Boned-Wrapt meat. It is insulated with the Santocel insulation made and distributed by Monsanto Chemicals Co.

Boned-Wrapt meat consists of cuts of meat prepared for the table and packed in neat, compact boxes.

According to Mr. Morrison, this product ships best in this new container when it is frozen at —150° F. "This is colder than dry ice by 40° F.,

(Concluded on Page 4, Column 2)

EXPERIENCE . . . QUALITY. . . SERVICE—that's what you get when you let Union Steel Products work with you on shelving for your post-war models. Our men have had years of experience in design and manufacture . . . our plant has every needed facility to turn out attractive, strong and correctly designed shelves and baskets. Let us suggest ways to turn out better shelving at lower costs to your post-Victory refrigerators. Write for our new brochure on Refrigerator Shelving.

UNION STEEL PRODUCTS CO.
Albion, Michigan

OPA Outlines Set of Standards to Govern 'Absorbing' of Supplier's Price Increases

(Concluded from Page 1)

wholesale and retail levels to cover suppliers' price increases only if this adjustment is necessary to meet either the earnings standard or the product standard. That is, (1) to permit an industry as a whole to maintain its earnings at peacetime levels, or (2), to prevent the margin on a commodity that does not represent all or most of a trade's volume from falling below the trade's operating expense rate.

Defines the method of determining the "minimum margin" below which wholesaler and retailer margins on a particular commodity will not be reduced by absorption of supplier price increases. This "minimum margin" is the expense rate or the previous margin on the commodity, whichever is lower.

Accepts, with some limitations, the trade proposal to use the individual seller's expense rate in measuring the "minimum margin" for commodities subject either to "freeze" or seller's historical margin types of price control. Tradewide expense rates will be used for commodities subject to types of price control that give uniform margins throughout the trade or have uniform dollar-and-cent ceilings.

Rejects the trade's proposal to add special allowances to the expense rate in computing the "minimum margin." This refers particularly to profit allowances, or to a tolerance in anticipation of changes in operating costs or volume of sales.

States the principle to be followed in dividing cost absorption between wholesalers and retailers.

Mr. Brownlee added that these policies were not stated in final form, but would be applied to the distributive trades "until changed."

The trade had recommended that the policies not be considered a formula for reconversion goods. In this connection, Mr. Brownlee said that they were "always subject to review whenever conditions change significantly in the trade or in the national economy."

The trade also had declared that the earnings standard should be based on net profit after all expenses, including federal taxes. In his statement, Mr. Brownlee emphasized that the standard of peacetime profits "before taxes" had been explained at Congressional hearings, and that Congress had passed the Stabilization Extension Act of June, 1944, without questioning OPA's interpretation.

OPA has "gone a long way in proposing to use total costs as the measure of the minimum margin beyond which absorption will not be required on a specific commodity," Mr. Brownlee said. In the manufacturing industries, prices are considered "fair and equitable" so long as they cover not "total costs" but "merely the out-of-pocket costs" of the industry generally. In addition, use of individual seller's expense rates, where practicable, makes OPA's policies even more liberal, Mr. Brownlee said.

"This differentiation in treatment in favor of the distributive trades is justified only on the grounds that allocations of operating costs to particular products or lines of products handled by these trades cannot be made," Mr. Brownlee concluded.

Details of OPA's cost absorption policies for wholesalers and retailers follow:

EXPENSE RATES

In computing margins below which cost absorption will not be required, "the objective sought is a measurement of operating expenses as a minimum margin over net cost of goods."

The expense rate is the percentage of operating expenses to net sales and is used as the estimate of the cost of handling a given commodity.

The operating expense rate used will be for the most recent fiscal year for which information is available.

If the cost of goods is figured before cash discounts have been made, the margin must be reduced by the amount of cash discounts. If the net cost of goods is used, the expense rate need not be adjusted.

Allowances for inventory shortages or mark-downs will not be included in the expense rate. Instead, OPA will specify an allowance for known shrink and non-promotional markdowns, wherever they are significant and can be measured. This allowance will be added to the expense rate.

No profit allowance nor allowance for interest on the firm's own funds will be added to the expense rate. OPA has always rejected the principle that ceiling prices must be high enough to provide a profit on each item. The profit position of the trade is protected by the over-all earnings standard.

No tolerance will be permitted in anticipation of changes in operating costs or volume of sales. Instead OPA proposes to obtain up-to-date sales and expense data to determine whether volume and cost changes warrant price increases—"especially where absorption has previously taken place."

MINIMUM MARGIN

No group of commodities is exempt from the provision that manufacturers' increases must be absorbed by retailers and wholesalers unless such absorption would reduce margins below a "minimum margin." This margin is defined as follows:

For commodities customarily or previously sold on margins higher than the most recent annual expense rate, the "minimum margin" will be the expense rate plus any allowance made for shrink or markdowns.

For commodities customarily or previously sold on margins below the most recent annual expense rate, the "minimum margin" will be the previous margin. In such cases sellers will not have to absorb suppliers' prices increases, but neither will they be allowed to increase margins to equal the expense rate.

INDIVIDUAL VS. TRADE-WIDE EXPENSE RATES

The "minimum margin" for commodities under the "freeze" type of price control or under a pricing method based on the individual seller's margin during a base period will be the individual store's expense rate.

For commodities on which OPA has set or later sets uniform trade-wide margins or dollar-and-cent price ceilings, average expense rates for the entire trade will be used. The trade in question will be the one which is most important in the distribution of the commodity.

Trade-wide expense rates also will be used for commodities selling at relatively uniform margins, even though the actual method of price control is of the "freeze" or "individual seller's margin" type. In these cases, however, there would be a "floor margin" below which no seller would be required to sell a particular commodity.

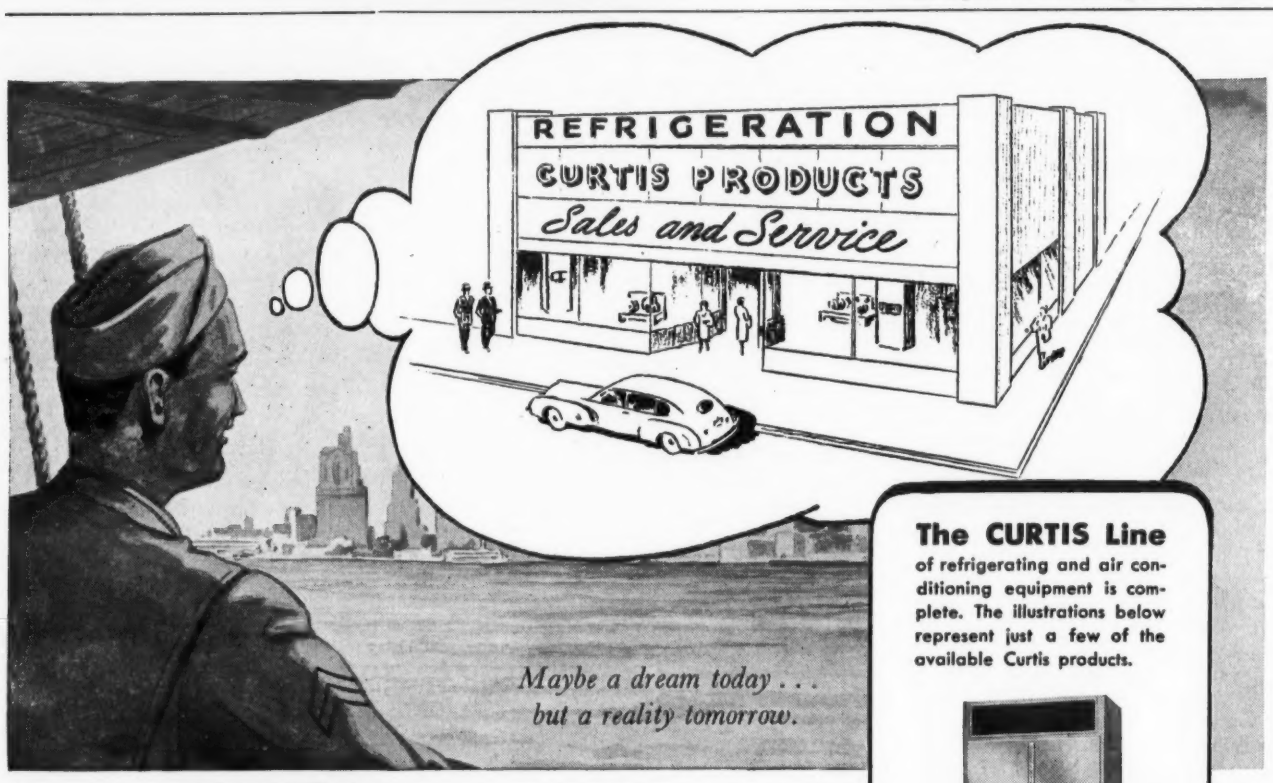
If suppliers' increases are so small that few, if any, sellers would be left with margins below individual expense rates, OPA may require all sellers to absorb the increase, regardless of the pricing method used.

Price increases may be granted if any "significant" group of outlets is subjected to over-all hardship by the use of trade-wide expense rates. These increases would be authorized either for the hardship group or all sellers, depending on conditions.

In figuring either individual store or trade-wide expense rates, the rate for the particular department concerned rather than for the entire store or trade will be used wherever records are customarily kept on a departmental basis.

RETAIL AND WHOLESALE SHARE OF ABSORPTION

Manufacturers' price increases which do not exceed the amount that wholesalers and retailers together can absorb will be divided between the two trades. "The basis of division will be some measure of the relative ability of each trade to absorb the manufacturer's increase."



CURTIS Refrigeration Equipment Offers You the Same Economical Dependability So Valuable to Our Armed Forces

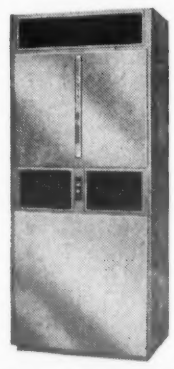
To thousands of our G. I. Joes and men in all branches of the service who have seen CURTIS equipment "deliver the goods" — to those who are thinking of that "after-the-war-job," or "that business of my own," no wiser steps can be taken than to put to good use the experience gained in the installation and maintenance of refrigeration and air conditioning equipment—by becoming actively engaged in the further development of this ever-growing industry.

Write for Complete Information

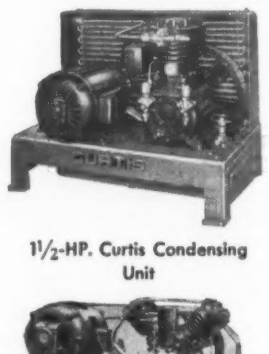
You will be interested in reading about the possibilities in the field of refrigeration and air conditioning. Why not write today for Bulletins C-58, C-68-C, and C-14-M, covering this interesting and profit-building business.

CURTIS REFRIGERATING MACHINE DIVISION
of Curtis Manufacturing Company
1912 Kienlen Avenue, St. Louis 20, Missouri

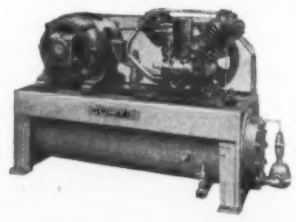
The CURTIS Line
of refrigerating and air conditioning equipment is complete. The illustrations below represent just a few of the available Curtis products.



5-HP. Curtis Packaged Air Conditioner



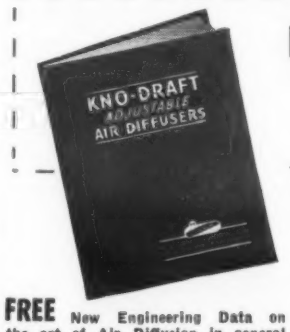
1½-HP. Curtis Condensing Unit



15-HP. Water-cooled, Shell and Tube Condensing Unit

CURTIS REFRIGERATION AIR CONDITIONING AND COMMERCIAL

FOR VICTORY BUY MORE U. S. WAR BONDS AND STAMPS



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FREE: To those responsible for air diffusion "design," and to those who install the equipment and are responsible for its performance.

FREE New Engineering Data on the art of Air Diffusion in general and the proper application of KNO-DRAFT ADJUSTABLE DIFFUSERS in particular.

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IT CONTAINS—Clear sketches, dimension prints and instructive text for quick accurate SELECTION—APPLICATION—LOCATION — ASSEMBLY — ERECTION — TESTING — ADJUSTMENT of air diffusers and ACCESSORY EQUIPMENT such as dampers, air equalizing grids, mounting rings and sectorizing baffles.

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Henry Diaphragm Relief Valve

For Instantaneous Pressure Relief with Fast and Positive Reseating

Design of this relief valve is unique in that it incorporates a diaphragm construction with an unusual seating arrangement. The result is an opening and closing snap-action movement. Large surface area of the pressure actuated diaphragm causes instantaneous relief as compared to gradual opening in conventional spring loaded relief valves. When the pressure in a system reaches the relief point, wire drawing, which may ruin a valve seat, can not take place because there is no slow movement of the valve seat disc in the Henry Diaphragm Relief Valve.

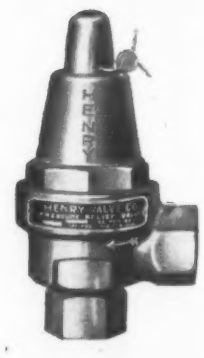
This valve is recommended for protection to a system containing a large charge of freon or methyl chloride refrigerant. It may be employed either for relieving high side or low side to atmosphere. It can also be installed so as to relieve from high to low side of system. It meets the requirements of all existing safety codes. Due to its acknowledged efficiency through dependable performance under all conditions of service, the Henry Diaphragm Relief Valve is today widely used in refrigeration and air conditioning installations of the Army, Navy and Maritime Commission.

The Henry Diaphragm Relief Valve is available in ½" F.P.T., ¾" F.P.T., ⅝" O.D. and ⅞" O.D. Solder connections and at pressures ranging from 90 pounds to 300 pounds per square inch. Each valve is individually adjusted, set at pressures ordered and marked with its rated free air passage capacity per minute. Locking device prevents tampering with pressure setting or changes in setting due to vibration.

FOR FREON AND METHYL CHLORIDE REFRIGERANTS

Type 542. With solder connections. Extended tube sockets at inlet and outlet ports prevent transfer of installation heat to internal parts.

☆



Type 541. With female pipe thread connections.

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Heads Tecumseh Service

FRANK G. PURCELL
Newly appointed service manager for Tecumseh Products Corp.

Complete Line of
HERMETIC
Self-Contained OPEN TYPE and REMOTE TYPE
Refrigerating Units
⅛ TO 20 H.P.
UNIVERSAL COOLER
MARION OHIO — BRANTFORD ONTARIO
WE SELL TO MANUFACTURERS ONLY
UNIVERSAL COOLER CORPORATION
Automatic Refrigeration since 1922

New Shipping Container Radical In Its Design

(Concluded from Page 1, Column 5)

and it is an actual fact that dry ice, brought in contact with meat at —150° F., would warm up the meat.

Once the meat is frozen to —150° F. and tightly packed into the shipping container, the combination package may then be safely shipped by any means of non-refrigerated transportation for a period of 10 days and will be at a temperature of 0° F. or lower when it arrives at its destination.

It isn't necessay to have a refrigerated or insulated car. Test shipments have been made in which a complete banquet of Deepfreeze-frozen products have been shipped halfway across the country in the new container, and other shipments of such products as salad, soup, pie, cake, and ice cream have been made to both coasts.

Mr. Morrison says that with the new container the savings in shipping meat products (when Bone-Wrapt meats are used) will be at least 75% over ordinary methods.

Steamship lines, using the new container, could ship perishables to such places as the Hawaiian Islands without need of icing equipment on the ship. On routes where stops are made at a number of small ports, the barrel size of the shipper container permits the dropping off of a limited quantity of products.

It was indicated by Mr. Morrison that plans are being made whereby the Deepfreeze unit and the new shipper containers would be rented to large transportation companies.

Welcome to U. S.!

FRANK HANSEN
The general manager of F. C. Lovelock Pty., Ltd., of Sydney, Australia, is due to arrive in the United States early in April. Mr. Hansen will spend several weeks in this country, contacting American manufacturers of refrigeration equipment and supplies.

Coleman Heads Chicago Wesco Appliance Sales

CHICAGO — M. C. Coleman has been named sales manager of metropolitan and provincial Chicago for the appliance division of the Northwestern district of the Westinghouse Electric Supply Co.

Kelvinator of Canada Promotes Blay, Phillips

LONDON, Ont.—The appointment of J. S. Blay as vice president in charge of sales and of A. V. Phillips as vice president in charge of engineering at Kelvinator of Canada, Ltd., has been announced by C. W. Hadden, the company's new president and general manager (the NEWS, Feb. 12).

Mr. Blay, born in Stratford, Ont., joined the Kelvinator organization in 1926.

Mr. Phillips, born in Hamilton, Ont., became associated with Kelvinator of Canada in 1927 in commercial sales engineering and refrigeration developments.

Montreal Convention Told 'Service Is Main Job'

(Concluded from Page 1, Column 5)

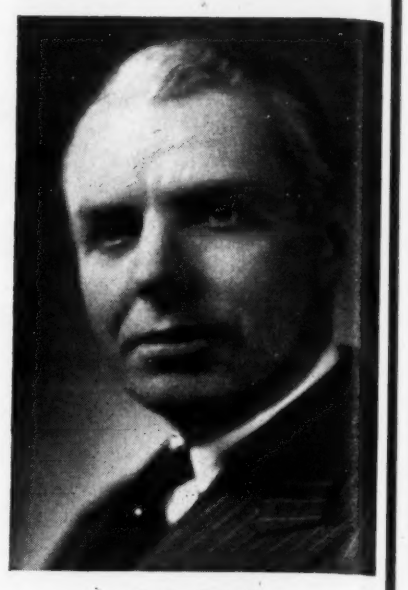
for Canada. At present, commercial refrigeration equipment is installed in Canada only for highly essential new and replacement purposes on individual applications, each of which must be approved by the Administrator. This will probably be continued, rather than the permitting of manufacturing and distribution of equipment on an inventory basis.

Report by W. J. Marshall, president, and by E. G. McCracken, secretary of the Interprovincial Association, seemed to indicate that National Selective Service in Canada has more generally recognized the essentiality of refrigeration repairmen than has U. S. Selective Service, with the result that deferment of experienced repairmen has been nearly 100%.

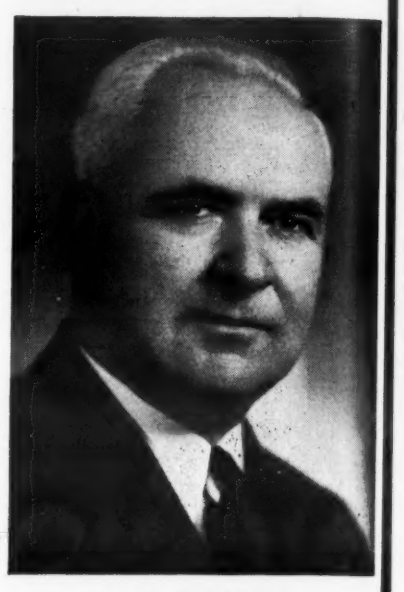
A major problem of Canadian refrigeration service men has been in obtaining tires for their cars and trucks. In an arrangement made with the rubber controller's department, any commercial refrigeration service man traveling 75% of his mileage on such business was to be included in the "essential" category for tires and tubes.

"Many of the regional controllers in outlying districts apparently have not been advised of this arrangement by the authorities in Ottawa," said Mr. McCracken. "We are going to continue our efforts to see that refrigeration repairmen in all parts of Canada obtain tires."

New Vice Presidents

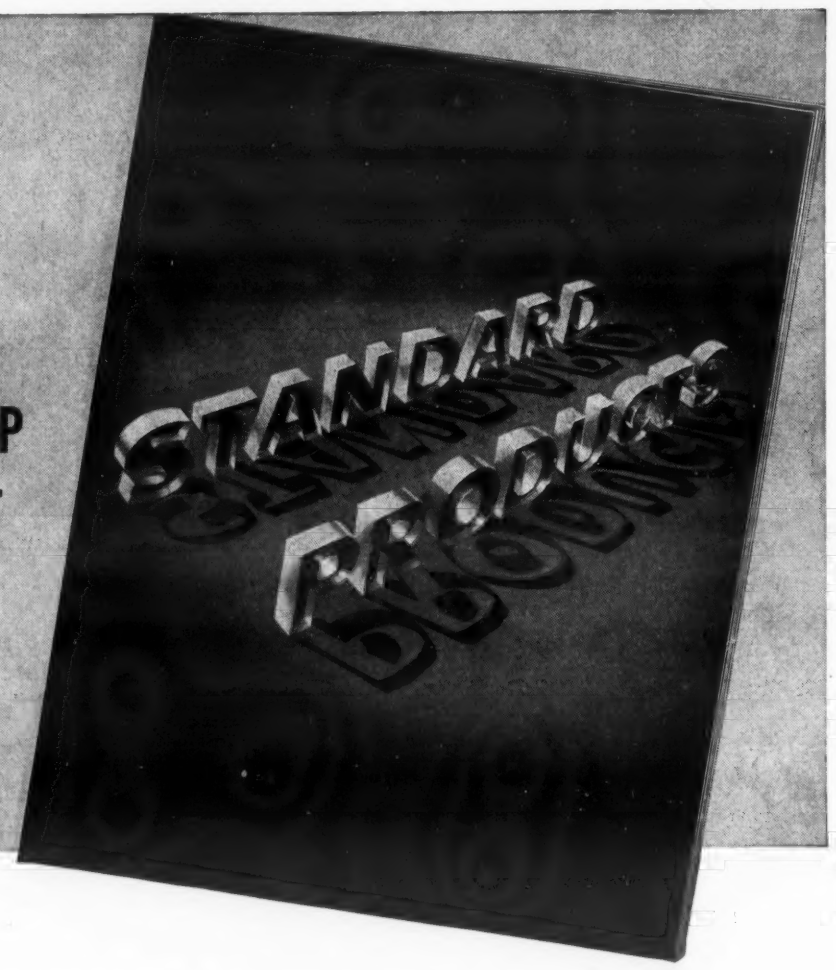


J. S. BLAY
Recently appointed vice president in charge of sales for Kelvinator of Canada, Ltd. He was formerly general sales manager, and has been with the company since 1927.



A. V. PHILLIPS
Named vice president of Kelvinator of Canada in charge of engineering, he was formerly chief engineer.

A NEW CATALOGUE THAT WILL HELP YOUR PRODUCT PLANNING



TO HELP you in your product planning, THE STANDARD PRODUCTS COMPANY has just compiled a comprehensive brochure which contains many valuable suggestions in the use of plastics, molded rubber and steel stampings.

Attractively illustrated in this new brochure are STANDARD PRODUCTS COMPANY's full line of widely diversified products which include: thermo-plastics, thermo-setting plastics and mechanical rubber goods—glass run window channel, automotive hardware and munitions.

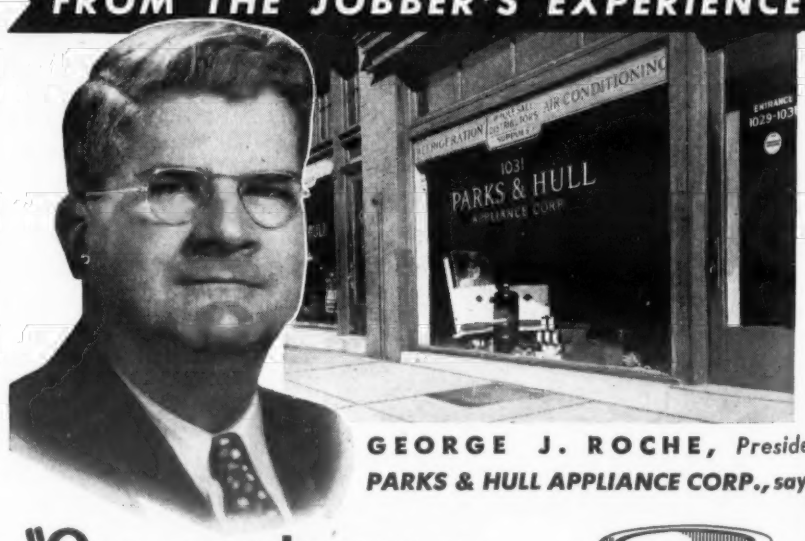
Copies of this interesting brochure will be gladly furnished on request—fill out the coupon at the right and mail it to us today.

MAIL THE COUPON FOR YOUR COPY OF THE CATALOGUE AT ONCE

Standard Products Co., 505 Boulevard Bldg., East Grand Boulevard, Detroit 2, Michigan.
Gentlemen:
Please forward me a copy of your latest catalogue. Thank you.
Name _____
Title _____
Company _____
Street _____
City _____ *State* _____

THE STANDARD PRODUCTS COMPANY
General Offices and Research Laboratory
505 Boulevard Bldg. • Woodward Ave. at E. Grand Blvd. • Detroit 2, Mich.

FROM THE JOBBER'S EXPERIENCE



GEORGE J. ROCHE, President
PARKS & HULL APPLIANCE CORP., says

"Our customers DEMAND DAVISON'S Silica Gel"

"They say that Davison's Silica Gel was the first practical drying agent that gave them the capacity necessary to completely eliminate moisture troubles. Experience with Davison's showed them its other advantages—and many of them say it actually helps them do a better job for their customers. I've heard many interesting stories of how Davison's Silica Gel has 'saved the day' on a particularly mean job. Sure—they all try other drying agents, but they come back to Davison's Silica Gel pretty quickly because when they use Davison's they can be sure."

Gives you—1, Maximum capacity that is not affected by oil; 2, Instant action; 3, Removal of Acids and Corrosive Compounds; 4, Freedom from Channelling of Refrigerant; 5, Safety—will not attack metals or alloys.

Stock and recommend Davison's Silica Gel--in factory-charged dehydrators and for refilling.

CURTIS BAY WORKS

THE DAVISON CHEMICAL CORPORATION
BALTIMORE-3, MD.
Progress through Chemistry

Canadian exclusive sales agents for DAVISON'S SILICA GEL:
CANADIAN INDUSTRIES LIMITED, General Chemicals Division

Another Example of Kelvinator's "Retail-Minded Thinking"

Television Advertising!

Experimental Series Starring "The Society of Amateur Chefs" and famous guests to provide "know how" in use of great, new postwar advertising medium.

Starting months ago to pre-sell a vast postwar market for Kelvinator Retailers, Kelvinator launched one of the great national magazine campaigns in appliance-selling history!

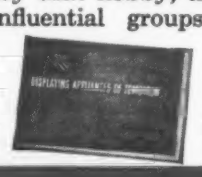
Then . . . Kelvinator added its already famous weekly radio program over the entire Blue Network . . . starring the Andrews Sisters, plus famous guest stars of stage, screen and radio.

NOW . . . typically in keeping with Kelvinator's dynamic, forward-looking policy of maintaining merchandising leadership . . . Kelvinator is experimenting with and developing "know how" with the newest of advertising mediums—TELEVISION!—destined to become a major factor in the years to come.

With a perfect merchandising tie-in for kitchen appliances, Kelvinator chose for its program experiments the famous "Society of Amateur Chefs" . . . who, by that hobby, are one of America's most influential groups among discriminating appliance buyers. Illustration above is action shot from first Kelvinator Telecast which starred Rube Goldberg and Otto Soglow, ace cartoonists, with Ben Butler and John Reed King.

With this unique show, Kelvinator is at this early date gaining knowledge and perfecting techniques in the use of this new sales medium that may well be one of the most powerful of the postwar world.

Merchandising leadership is another reason why, postwar, retailers with the Kelvinator Franchise will hold "the most valuable franchise in the Appliance Industry."



FOR APPLIANCE DISPLAY — Coming soon — a new book of modern store and appliance department layouts to help Kelvinator Retailers plan for greater sales through better display.

LOOK AHEAD WITH

TUNE IN: Every Sunday 4:30-5:00 P. M. EWT for the new NASH-KELVINATOR RADIO SHOW, starring the ANDREWS SISTERS—Over the entire Blue Network

Kelvinator

DIVISION OF NASH-KELVINATOR CORPORATION

Kenosha · Milwaukee · DETROIT · Grand Rapids · Lansing

Heads Norge Service

THURLO F. JOHNSON

Recently named national service manager by Norge Division, Borg-Warner Corp. He has been with Norge since 1933.

Wesco Names J. Myers Middle Atlantic Head

WASHINGTON, D. C. — Appointment of John F. Myers as middle Atlantic district manager of the Westinghouse Electric Supply Co. has been announced by David M. Salsbury, vice president. Mr. Salsbury, at the same time, announced the appointment of H. C. Lease to succeed Mr. Myers as manager of the Washington branch.

John Lebor Elected Secretary of York

YORK, Pa.—John F. Lebor has been elected secretary of the York Corp., manufacturer of refrigeration and air conditioning equipment. Mr. Lebor, now treasurer of the company, will combine the duties of both offices and will succeed the late Vincent Keesey of York, Pa., who served as secretary and general counsel until his death.

Mr. Lebor joined the York Corp. in 1940 as assistant to the executive vice president. Before that he was engaged in financial work in New York City for a period of 10 years with the firm of Scudder, Stevens & Clark and the Radio-Keith Orpheum Corp. He was named assistant treasurer of York in 1941 and treasurer in 1944.

Scharer To Manage Servel International Division

NEW YORK CITY—A. F. Scharer is now head of the newly formed international division of Servel, Inc., with headquarters at 51 E. 42nd St., here. Mr. Scharer has had charge of export business for Servel since 1929.

The international division of Servel will promote the distribution of a complete line of refrigeration fixtures of allied manufacturers for sale through its world wide distributing organization, in addition to its own refrigeration and air conditioning products.

In peacetime, Servel manufactures gas and kerosene refrigerators, electric commercial refrigeration equipment, gas water heaters, and gas all-year air conditioning units.

Bacon and Babcock In New Posts with Graybar

NEW YORK CITY—E. Lex Bacon and Ray C. Babcock have been appointed assistant advertising and sales promotion managers, respectively, for Graybar Electric Co., Inc., here. Mr. Bacon will handle the promotion of electrical supplies, and Mr. Babcock will concentrate on the merchandising of electrical appliances and the promotion of electrical communciation equipment.

Moves to Kold-Hold

L. R. BURR

* * *

Kold-Hold Awarded Army-Navy 'E'

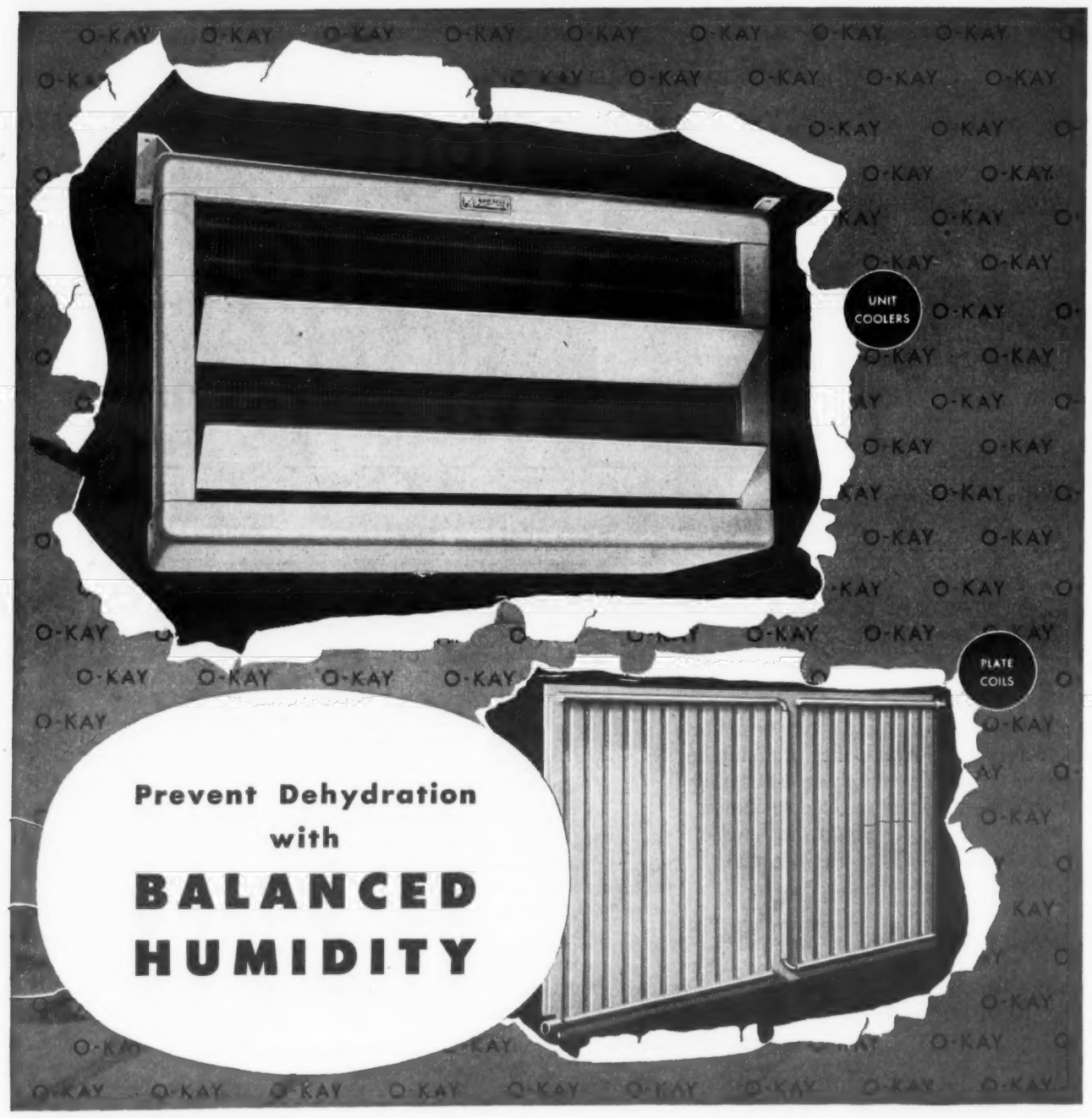
LANSING, Mich. — Two personnel changes and the renewal of the company's Army-Navy "E" award have been announced by Kold-Hold Mfg. Co. here.

L. R. Burr, for the past five years with the Trane Co., has joined the Kold-Hold engineering staff, and T. O. Lester of Chicago has replaced Henry Schwartau as the company's representative in the Chicago, Wisconsin, and Illinois areas.

Prior to his Trane Co. affiliation, Mr. Burr, who was graduated in 1934 from the University of Illinois in mechanical engineering, served as development engineer for General Refrigeration Corp. of Beloit, Wis.

Navy Shifts Lt. Henderson To Washington Duty

WASHINGTON, D. C.—Lieut. W. B. Henderson, USNR, formerly Executive Vice President of ACRMA, has just returned to the United States after a tour of duty with the U. S. Naval Air Forces in the South Pacific. He has been posted to temporary duty in the Bureau of Naval Personnel at Washington, D. C.



O-Kay Coils are designed and built by men who know your application problems. O-Kay Coils are engineered right. They maintain a balance between the moisture level of the air and the water content of the products—to prevent dehydration in all types of cooling applications. They represent the combined experience of men who have spent many years in the refrigeration industry. Many new features reveal a marked advance in coil design. Investigate O-Kay Coils—the finest cooling devices available to the refrigeration industry! Write Kay today!

O-KAY COILS

KAY PRODUCTS COMPANY • Division of Tyler Fixture Corp. • NILES, MICHIGAN

ANSUL

ST IN REFRIGERANTS

Ansul was first in America to produce Sulfur Dioxide for refrigeration (1915).

At the demand of the growing fractional-tonnage household refrigeration industry, Ansul began production of Methyl Chloride.

Ansul still analyzes *individually* every cylinder before it is shipped because—

LIQUID Sulfur Dioxide BY ANSUL*

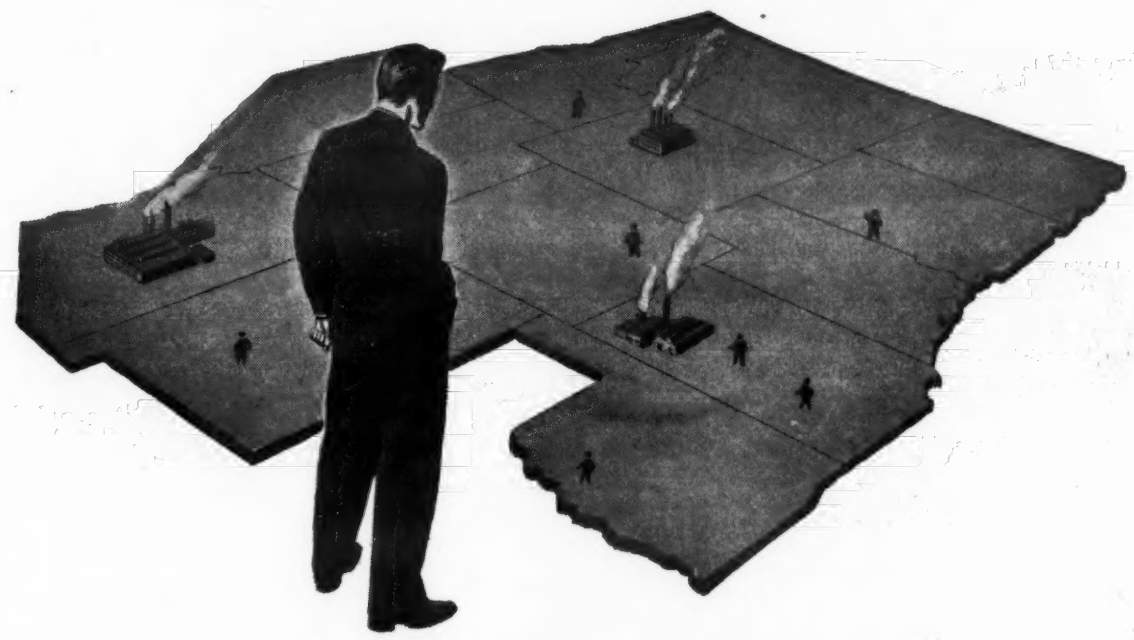
LIQUID Methyl Chloride BY ANSUL*

The purity, dryness, and safety of handling of Ansul refrigerants are still top standards of a high-specification industry which Ansul is proud to have pioneered.

*REG. U. S. PAT. OFF.

ANSUL CHEMICAL COMPANY
"NOW IN OUR 30TH YEAR"
MARINETTE, WISCONSIN
AGENTS FOR KINETIC'S "FREON-11," "FREON-12" AND "FREON-22"

Greater Sales for you in the Chicago market



than in 13 states combined!

Sales potentials in the Chicago market for autos, refrigerators, washing machines, and all "big unit" products are tremendous. Dealer and consumer surveys reveal a pent-up demand running into the billions. Here in this one compact market is more postwar business than will be available in 13 states combined.

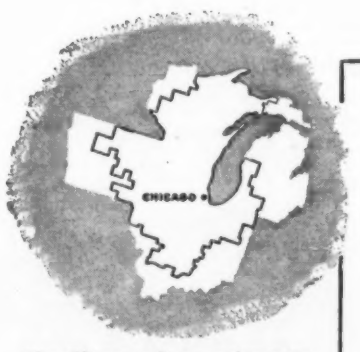
By starting now, you can get ready to cash in on the buying assured by diversified farm and factory income, by huge savings and by a demonstrated responsiveness to selling. Here are experienced dealers easily accessible to factory and salesmen—dealers who, with their customers, can be reached and sold at one low cost through a single powerful advertising medium—the Chicago Tribune.

Throughout the Chicago market the Tribune is the voice of the midwest, read, quoted and *bought from* as is no other medium. It has a regional prestige, going all the way back to pioneer days, that is unrivaled. It is celebrated for its performance in helping manufacturers launch new products and in helping old and new manufacturers hang up national sales records.

One out of every three families in 756 cities and towns of 1,000 or more population in this $4,496,734,000 market reads the Tribune on weekdays. On Sundays, it is practically every other family.

The Tribune is a powerhouse in building sales volume quickly. It is basic to any long-term, profitable operation. It, alone, offers you a choice of monoroto, coloroto, comicolor, newsprint color and black and white printing—whichever you want to use to put over your name, product and message.

Consider what you can do in this market with its huge sales potentials and a single medium with one of the lowest milline rates in the United States. For market facts and merchandising information, call a Tribune representative.



The Chicago Area: strategically located, compact, fortified against reconversion problems, big enough to absorb all that many a factory can make.

Now available for your study and use are the findings of a market-wide dealer and consumer investigation revealing ownership of automobiles and electrical appliances, brand preference and expected purchases. To get these facts, address C. S. Benham, Manager, National Advertising, Chicago Tribune, Tribune Tower, Chicago 11, Ill.

Chicago Tribune

THE WORLD'S GREATEST NEWSPAPER

January average net paid total circulation:
Daily, over 935,000; Sunday, over 1,300,000.

THERE IS NOTHING LIKE
STAINLESS STEEL
TO WITHSTAND
HIGH HUMIDITY.
IT IS A "NATURAL" FOR
REFRIGERATOR
SHELVES

WMP

WALL WIRE
PRODUCTS
COMPANY

11333 GENERAL DRIVE
PLYMOUTH, MICHIGAN
Makers of STAINLESS STEEL AND
RETINNED REFRIGERATOR SHELVES AND WELDED WIRE PRODUCTS

Dealers' Anticipated Buying Runs Ahead Of Consumers In Mississippi Survey

JACKSON, Miss.—Dealer optimism has run far ahead of consumers buying plans in the postwar market for refrigerators and radios, and for such table appliances as electric irons, toasters, and coffee makers, in the 41 counties in western Mississippi served by the Mississippi Power & Light Co., a recent survey has revealed.

Of 22 appliances listed, total returns showed dealers strongly optimistic about 10 of them, pessimistic about only six, and in agreement with homemakers' figures for the remaining six.

The survey was effected through two separate operations. First, the utility's home service department workers visited a cross section made up of several hundred residential power users, to ask about their appliance needs.

$13,860,590 MARKET

In answer to the question, "What appliances do you expect to buy within 12 months after appliances are again available?" survey figures showed a buying market estimated at $13,860,590.

These figures were reproduced in "Begin Again," a booklet covering the results of the company's survey of residential users in the 68 communities it serves.

Representatives of the power and light company then called on 347 appliance and equipment dealers, present and prospective, with these results of the homemaker survey. The dealers were asked the question: "With this market analysis in hand, what appliance orders are you ready to place with the proper distributor or manufacturer?"

The question was broken down into two parts, for indication of the orders the dealer estimated he wants to place for shipment as soon as appliances are available, and the number he estimated he will need within 12 months.

The answers indicated in the chart centered here are taken from the company's second booklet, "Survey of Dealers." The totals represent the dealers' estimates of the job ahead of them when appliance production is resumed.

FARM MARKET

Also indicated, but not reproduced in the larger table, were dealers' opinions on farm appliances within the field. Their wants now, and within 12 months, ran as follows:

Farm utility motors	109	584
Farm frozen food units	83	234
Walk-in coolers	7	54
Milk cooling equipment	23	39
Dehydration equipment	5	10

Dealers in commercial refrigeration and ventilating equipment indicated these intentions, for immediately, and for within 12 months:

Commercial motors and controls	229	1,070
Ventilating equipment	50	512
Refrigeration equipment	11	172
Air conditioning equipment	45	123

Other points were made in the booklet, specifically the dealers' need for planning now for a highly competitive postwar market. Wherever the sum total of dealer orders tops consumer demand, intensive selling will result, the utility points out. This is a healthy condition, but it calls for healthy preparation.

It is also true that in the case of seven of the 22 appliances listed, the survey showed substantial unawareness of postwar markets.

SOME WEAK SPOTS

The responsibility for this preparation is not the dealers' alone, the booklet adds. It deserves the attention of manufacturers, distributors, and the utility itself. The following weak spots were highlighted:

Out of 347 dealers,

1. Only 181 plan to use sales training.
2. Only 216 plan to use manufacturers' promotional material.
3. Only 208 plan to maintain a repair department.
4. Only 122 now have franchises.
5. Only 112 now have sales managers.
6. Only 48 plan to do contract wiring.
7. The total 347 dealers plan to employ only 356 outside salesmen.
8. All of them together plan to use only 196,731 sq. ft. for their appliance and equipment departments, an average of 576 sq. ft. per dealer, or a space approximately 23 ft. by 25 ft.

The successful postwar dealer, the utility believes, will not ignore these things. Adequate space, well planned displays, a complete line of appliances and equipment, and active, well paid salesmen—all of these are going to count heavily in the competitive postwar markets coming up.

Retailers Very Optimistic on Major Appliances

Dealers: Appliances They Will Buy Now:		Within 12 Mos.	Homemakers: Appliances They Will Buy Within 12 Mos.	
Electric irons	10,778	40,349	15,754	Optimistic, very
Radios	8,360	37,049	15,112	Optimistic, very
Mechanical refrigerators	5,914	25,064	13,913	Optimistic, very
Clothes washers	4,225	19,813	17,338	Optimistic
I.E.S. lamps	4,888	18,841	21,751	Pessimistic
Attic fans	2,037	9,763	8,562	Pessimistic
Food mixers	2,098	8,244	8,476	About even
Vacuum cleaners	1,409	7,540	9,376	Pessimistic
Waffle irons	1,998	7,288	4,666	Optimistic
Frozen food units	1,556	7,288	7,577	About even
Toasters	1,993	6,797	2,783	Optimistic, very
Coffee makers	1,817	6,414	3,253	Optimistic, very
Electric ranges	1,160	4,800	4,409	About even
Sewing machines	731	3,852	5,865	Pessimistic, very
Automatic water heaters	744	2,708	3,382	Pessimistic
Automatic ironers	639	2,495	2,312	About even
Electric dishwashers	333	1,582	1,670	About even
Gas space heaters	3,260	10,845	6,636	Optimistic
Gas ranges	1,896	8,423	6,507	Optimistic
Gas automatic water heaters	1,094	6,734	3,810	Optimistic, very
Gas floor furnaces	1,015	3,172	3,339	About even
Gas central heating equipment	144	836	1,327	Pessimistic, very

PANELYTE*
OFFERS YOU
EXPERT COUNSEL
in your own locality

Panelyte sales engineers are at *your* service . . . ready to supply authoritative advice on the uses of Panelyte structural, insulating and functional plastic parts in home freeze units, ice cream cabinets, commercial refrigerators and frozen storage units. Curved, formed and flat breaker strips in enameling stock, black or in colors . . . inner doors . . . door linings . . . throat linings . . . low cost backer strips . . . may be supplied.

Panelyte offers an *exclusive* odorless laminate 40 times less odorless than our grade known as "the best" in 1940. Synthetic baking enamels can be efficiently applied by a technique similar to that used with steel.

Backed up by the Engineering staff that has maintained our leadership in the refrigeration industry, these Panelyte Sales Engineers are *ready* to work with you *now* in designing and development work so that production, postwar, will move rapidly.

Atlanta
177 Harris St., N.W.
Atlanta 3, Georgia
Boston
1137 Park Square Bldg.
Boston 16, Mass.
Chicago
230 North Michigan Avenue
Chicago 1, Illinois
Cincinnati
1615-16 Carew Tower
Cincinnati 2, Ohio
Cleveland
813 Union Commerce Bldg.
Cleveland 14, Ohio
Dallas
825 Trunk Avenue
Dallas, Texas
Denver
Speer Blvd. at Lincoln St.
Denver, Colorado
Detroit
419 Boulevard Bldg.
Woodward at Grand Blvd.
Detroit 2, Michigan
Kansas City
901 Fidelity Bldg.
Kansas City 6, Mo.
Los Angeles
418 East Third Street
Los Angeles 13, Calif.
Mexico City
Calle de Arkansas No. 11
Mexico, D. F.
Montreal
132 St. James St., W.
Montreal, Canada
New Orleans
918 Union Street
New Orleans, La.
Phoenix
Phoenix, Arizona
Portland
411 S.W. 13th Ave.
Portland, Oregon
St. Louis
3980 Bowen Street
St. Louis, Missouri
St. Paul
2645 University Ave.
St. Paul 4, Minnesota
San Francisco
316 Eleventh Street
San Francisco 3, Calif.
Seattle
2406 First Avenue
Seattle 1, Washington
Syracuse
State Tower Bldg.
Syracuse 2, New York
Toronto
137 Wellington Street, W
Toronto, Canada
Trenton
Enterprise Avenue
Trenton 4, New Jersey
Vancouver
841 West Broadwan
Vancouver, B.C.

PANELYTE *the structural plastic*

PANELYTE DIVISION
ST. REGIS PAPER COMPANY
230 PARK AVENUE
NEW YORK 17, N. Y.

RECORD MAKER IN DESIGN, DEVELOPMENT AND MASS PRODUCTION OF STRUCTURAL RESINOUS LAMINATED PARTS FOR THE REFRIGERATION INDUSTRY

WEBER *first*

IN PEACE...WAR...POST-WAR

Commercial Refrigeration,
Soda Fountains, Ice Cream
and Frosted Food Cabinets

★

Investigate the country's most complete line of *commercial refrigerators, soda fountains* and Ice Cream and Frosted Food Cabinets before you make any post-war sales plans.

PLAN NOW TO SELL THE WEBER LINE INSTEAD OF SELLING AGAINST IT

Write today for data concerning the details of Weber distributorships. This franchise will make real money for those concerns who can qualify.

★

WEBER SHOWCASE & FIXTURE CO. INC.
5700 AVALON BOULEVARD • LOS ANGELES, CALIFORNIA

Inside Dope

By George F. Taubeneck

(Concluded from Page 1, Column 1)

thing on the favorite pages of our local newspaper that will wipe out this industry!

Where have you been? Is not Ice-o-tene and the iceotizing process the most spectacular thing that has happened in this industry in our time?

Or do you have an interest in this new invention and are your columns simply trying to lull this poor industry into a false sense of security?

Think what Ice-o-tene means! No more compressor manufacturers, no more jobbers, no more service men—and, worst of all, no more expansion valves!

It is up to you gentlemen to save this industry. What are you going to do about it?

RICHARD S. DAWSON

Hero Honored

Somewhat belatedly, but proudly, nevertheless, we present this communication:

Aetna Supply Co.
2720 Third Ave.
New York 54, N. Y.

Editor:

I feel you will be interested in the attached copy of proclamation issued by the President of the Bronx Borough (New York City).

Lieut. Shea was a former employe of Everlast Refrigeration Co., 444 Fourth Ave., New York City, and is, we believe, the only person, directly connected with the refrigeration industry, to be awarded the Congressional Medal of Honor.

PROCLAMATION

WHEREAS, a fellow-Bronxite, Lieut. Charles W. Shea, Jr., has received a rare honor in being awarded the Congressional Medal of Honor for extreme bravery on the field of battle, the medal being pinned on him by Lieut.-Gen. Mark Clark, and

WHEREAS, the decoration was given to this 23 year old Bronxite (known to his neighbors in Highbridge as "Red" Shea) for exceptional gallantry and bravery on an enemy-held hill outside Rome when he found himself surrounded by machine gun emplacements, and he calmly and skillfully cleared out three nests with rifle and hand grenades and then captured the hill against much larger German forces.

WHEREAS, Lieut. Charles W. Shea, Jr., and his accomplishments are but symbolic of the bravery and spirit of our servicemen and women, it therefore seems appropriate and proper that we on the home front should indicate publicly our gratitude and appreciation to those in service by a tribute to this gallant hero.

NOW, THEREFORE, I, James J. Lyons, President of the Borough of the Bronx, do proclaim Thursday, Feb. 8, 1945, as LIEUT. CHARLES W. SHEA, JR. DAY in The Bronx and announce that an appropriate ceremony will be held in the Veterans' Memorial Hall of the Bronx County Building at 8:30 p.m. on that day. The people of The Bronx are invited to attend and pay tribute to this hero, Lieut. Shea, who will be present with his family.

JAMES J. LYONS,
President of the Borough
of The Bronx

More G.I. Mail

Inasmuch as this week "Inside Dope" is turning out to be a Columnist's Mail Bag, we continue with this offering in re clever G.I. work on an overseas refrigeration problem:

Jersey Central Power & Light Co.
Asbury Park, N. J.

Editor:

Attached please find letter from Cpl. Walter J. Russell (12095703) 1076 Signal Co. 50th Serv. Gr. A.P.O. No. 559, c/o Postmaster, New York City. You will remember Walter as one of the two Frigidaire Engineers working at our New York Frigidaire office covering all of the New Jersey Dealers on commercial sales. When the New York Frigidaire organization was disorganized, Walter was set-out and immediately went to work in a defense plant.

He had the itch at the time to enlist, however had the responsibility of his Mother who was over 80 years old and with whom he lived. Finally, although over the draft age, he arranged for his married sister to take care of his Mother (she has died since Walter has been in England) and enlisted.

Please note that he went into the Radio Repair Section, training at Fort Monmouth, N. J. I happen to know that he was offered a chance to go to Officer's Candidate School. I was afraid that Walter, from the tone of his previous letters, would drop his first love, refrigeration, and go into the Radio field on his return, and now you will be glad to know that he has a standing offer in our Company to work for us on his return. I know Russ to be a real capable Refrigeration Engineer, an opinion shared by the late Maurice F. McCarthy, who was Commercial Sales Manager of the New York area for Frigidaire, and it would be a shame for him to desert the field.

Since the letter gives a clever and ingenious idea of making an ice-cream freezer, which was certainly a morale lifter to the boys overseas, I thought you might be interested in publishing the same.

C. R. BUTCHER,
Electric Sales Manager
Southern Division

Improvized Freezer

Dear Butch:

I received your letter written New Year's Eve—the best morale builder-upper I have had since arriving in the E.T.O. I will take your advice and do some looking around when I get home. Have been away from base on detached service for about six weeks—hence the delay in answering.

This job which took me away from base was my most interesting experience since joining the army. You guessed it—it was a refrigeration job. They located me through personal records and evidently someone gave me a real recommendation, judging by the way they treated me. The C.O. turned his jeep and driver over to me and told me his mechanics would do all the manual work. The two men who did most of the jobs were the best mechanics and two of the finest fellows I have ever met.

To make a long story short, we built, mostly from salvaged material, a direct expansion, horizontal ice cream freezer which turned out real American ice cream in less than seven minutes per batch. The men came back for seconds and thirds at mess—it was really smooth. Some of these boys have been over here for two years and have almost forgotten about real ice cream.

A few of the parts used might interest you. The freezer can is made from the hydraulic leg of a B-17, an aluminum door for the freezer is cut from the hub of a P-51 propeller, a sprocket for driving the dasher is from the control gear of a British Lancaster, bearings for the shaft are rocker arms from a wrecked Rolls Royce Merline engine, and many other bits and pieces. It is all enclosed in a steel cabinet (armor plate from a B-17) and painted with white enamel; the aluminum parts are polished and it really looks like a professional job.

Naturally the condensing unit is Frigidaire. I bought a number four body and fly wheel, a water condenser, low pressure control-high pressure cut-out, belts, and a motor pulley. I built the frame myself of angle iron. (It looks like an old "C"). The evaporator is 40 feet of ⅝ inch tubing wrapped around the outside of the can and controlled by an English-made, thermostatic expansion valve. The refrigerant is methyl chloride.

After the initial trial run and setting it worked like a charm and you can well imagine how pleased I was.

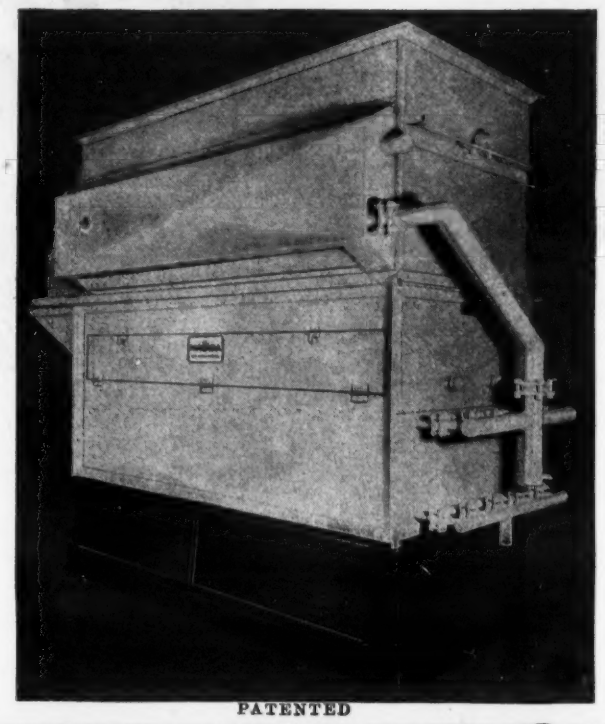
My stay away from base was a welcome relief from the monotony we all feel after over a year in the same place. I returned to base feeling much happier, and I do believe I gained a little weight.

Thank you for remembering me on Valentine's Day—all those things make me hope for an end of this mess so that we can be together once again.

RUSS

Extra Capacity and Improved Operation In

REFRIGERATION



● In plants where refrigeration uses a large proportion of total power, net savings as high as 35% have been created by the use of NIAGARA Duo-Pass AERO CONDENSERS. At the same time, refrigeration capacity has been increased without additional compressors. These gains result because the use of atmospheric air instead of water as the cooling medium provides excess condensing capacity and reduces head pressure.

Power savings, extra capacity and improved operation are lasting benefits because the Niagara patented DUO-PASS prevents scaling of condenser coils. Write for descriptive bulletins and records of savings that users have enjoyed. Saving of condensing water alone quickly repays the cost of installation.

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"25 Years of Service in Air Engineering"
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NIAGARA EQUIPMENT FOR FOOD INDUSTRIES: AIR CONDITIONERS, DEHYDRATORS, COOLERS, "NO-FROST" METHOD OF PRE-COOLING, FREEZING AND HOLDING, AERO HEAT EXCHANGERS, "DUO-PASS" AERO CONDENSERS

★

Back the Attack...Buy More War Bonds

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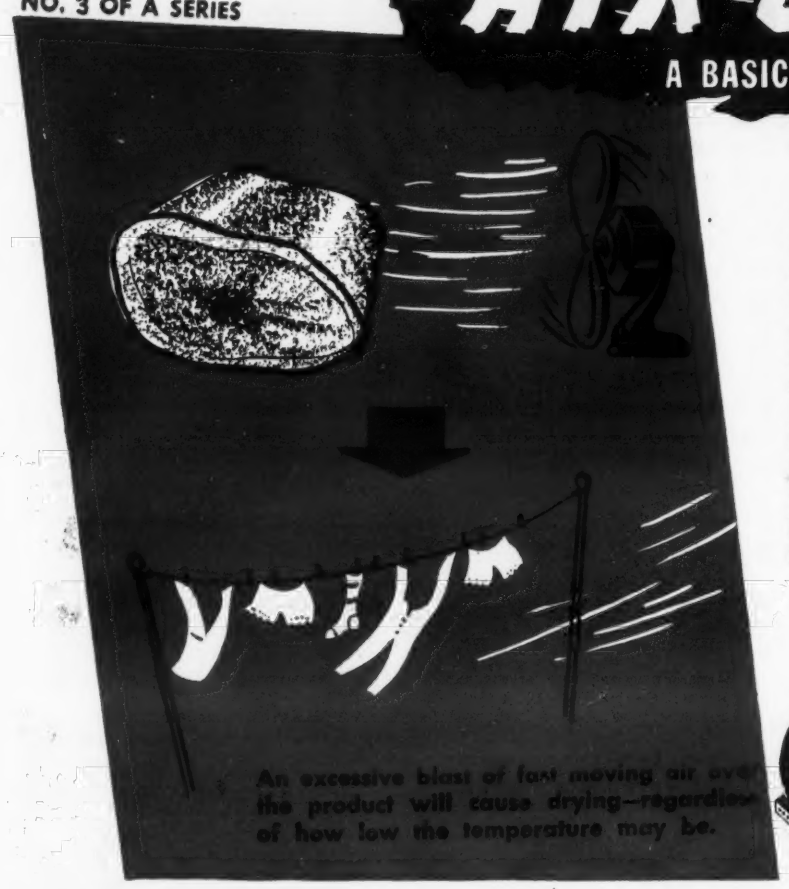
MINNEAPOLIS Honeywell
CONTROL SYSTEMS

The Polartron System of Frost-Free Refrigeration

NO. 3 OF A SERIES

AIR BLAST

A BASIC REFRIGERATION PROBLEM



AIR SPEED, AND AIR VOLUME, MUST BE CAREFULLY CONTROLLED

Product dehydration (drying out)—with its consequent weight loss, is directly related to air speed. A carefully modulated flow of air is desirable in the storage of products with a moisture content. A strong blast of air, on the contrary, leads to rapid and excessive drying.

M & E, in developing its post-war cooling units for meat and provision cabinets, has utilized the most approved principles of controlled air flow.

MANUFACTURERS OF CONDENSING UNITS AND FIN-TYPE COIL PRODUCTS

MERCHANT & EVANS CO.

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SHE'S GOING TO DEMAND A Deepfreeze TRADE MARK REG. U. S. PAT. OFF. ...AND NOTHING ELSE BUT!

FOR ONLY A Deepfreeze HAS 100% PRIMARY FREEZING SURFACE . . . NO FOOD DEHYDRATION

• A Deepfreeze will be Mrs. America's first choice—for only a Deepfreeze offers 100% Primary Freezing Surface—patented, exclusively Deepfreeze—for 100% protection against dehydration of foods.

• Deepfreeze is no postwar experiment. The Deepfreeze is the first successful home freezer—tried, proved and heartily approved by thousands of Deepfreeze owners—since 1938!

• Deepfreeze full-page advertisements in leading national magazines are working for Deepfreeze dealers now—winning customers for tomorrow's tremendous Deepfreeze selling opportunity!

• Plan *your* future with Deepfreeze!

Standard Double Deepfreeze

The DEEPFREEZE Is Basically Different

A solid wall of direct-action freezing surface entirely surrounds the food storage chamber. Thus, in a Deepfreeze, the maximum temperature differential between refrigerant and food storage chamber is less than 2 degrees. This prevents air from circulating and picking up moisture from foods. Foods *stay* juicy, farm-fresh!

Cartridge cases, airplane nose and tail gun turrets, blood desiccating units and industrial freezing equipment are among the war products that Motor Products Corporation is proud to be making to speed the day of Victory.

AWARDED DETROIT PLANT ARMY E NAVY

Deepfreeze TRADE MARK REG. U. S. PAT. OFF.

ONLY MOTOR PRODUCTS CAN MAKE A "DEEPFREEZE"

MOTOR PRODUCTS CORPORATION

Deepfreeze Division: 2481 Davis Street, North Chicago, Illinois

Main Plant: Detroit, Michigan Canadian Plant: Walkerville, Ontario

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Deepfreeze Division
2481 Davis Street, North Chicago, Ill.

Gentlemen: I am interested in getting full information regarding the Deepfreeze postwar selling opportunities.

Name .....

Title .....

Company .....

Address .....

Proper Knowledge of Food Processing Required by User of the Home Freezer

Poor Packaging Causes Most Failures—McCoy

D. C. McCoy of Frigidaire had prepared a discussion of some length on Dr. D. K. Tressler's paper "Home Freezers—Present and Future" which Dr. Tressler gave at the annual A.S.R.E. meeting (reported on page 26 of the Jan. 15 issue of the NEWS).

In the actual discussion period Mr. McCoy was able, because of time limitations, to give only a brief oral resume of his prepared discussion period. Published here are more complete excerpts of his written remarks.

Attention to the details of the food technology of frozen foods is of the greatest importance. These are simple, readily available from many sources, and require little or no more time to do properly than to do improperly.

In spite of the many excellent publications existing on freezing, prepared from work of competent investigators, many of those who are enthusiasts for freezing and are using it to preserve their food, still are not getting the excellent results which are possible and which a little more care and attention to detail would produce.

Let me refer to only two typical items as examples, namely, blanching vegetables and proper packaging.

The necessity for blanching vegetables has been questioned. Reputable authorities recommend, and my experience shows, that they should be blanched. The difference between blanched and unblanched vegetables is readily apparent for some varieties I have checked, often in a matter of days after freezing.

The question of proper packaging is one of the most frequent causes of failures for home-frozen foods and those prepared in the locker plant. The use of a good moisture-vapor-proof wrapping material *is a must.*

Laboratory moisture-vapor-transmission tests, laboratory tests with food wrapped and stored, and users' complaints prove that many materials supposed to be suitable, and commonly used, are wholly unsuited for this purpose. Field investigations have discovered even newspapers used for wrapping, and some people not wrapping or packaging at all. Complaints from locker operators and patrons have been traced directly back to improper wrapping. Fig. 1 shows clearly the difference between properly and improperly wrapped steaks, and is typical.

Manufacturers of equipment designed for freezing foods should take the matter of food technology of frozen foods into consideration in their marketing plans. Instructions should be provided, or sources of instructions should be recommended with equipment when sold to new users. Users' attention should be emphatically directed to these. No matter how good a piece of equipment the manufacturer provides, if the food technology is neglected, a dissatisfied and disappointed customer will result.

Ice Cream Cabinets and the Freezing and Storage of Foods

Since food rationing descended upon us, many old, worn-out ice cream cabinets have been sold to unsuspecting and overly eager purchasers at terrific prices. Results have been good, bad, or indifferent depending on the age and condition of the individual cabinet, and the skill with which it is used.

The problems arising from the use of ice cream cabinets are a result of using a design created to meet a specific need of the ice cream trade for purposes other than that for which it was intended. Here we see what we as engineers are constantly confronted with, namely that designs created for a specific purpose, create new problems when adapted to another use.

The *modern* ice cream cabinet forms an excellent basic design for a home freezer and storage cabinet. It represents a fifth of a century of experience which many newcomers in the field of home freezers and frozen food dispensing equipment will have to acquire the hard way—to their sorrow and to the sorrow of their customers. It offers no serious difficulties which cannot be met by

(Continued on Page 11, Column 1)

Time Required for Thawing Frozen Products

Where held when removed from freezing storage	Approximate temperature	Time required for thawing*	Time product may be kept without significant loss of quality
Room temperature	68° F.-75° F.	3- 4 hours	6- 8 hours
Ice box	45° F.-50° F.	8-10 hours	24-36 hours
Mechanical refrigerator ..	40° F.-45° F.	10-15 hours	2- 3 days
Ice cube compartment ...	20° F.-25° F.		
Fruits in sugar or syrup			10-15 days
Vegetables (dry pack)....			5- 7 days

* Rapid thawing in lukewarm water is preferred for peaches and apricots

°Fahrenheitor

Cools Air-Warm Bottles
in 10 minutes to 45°
in 15 minutes to 35°

•

Lead Crystal handblown
9" x 1" cork jacket handturned

$22.00

(West of Denver $22.50) Retail (Fairtraded)

U. S. PATENTS 2,075,831; 2,163,868
Trademark Registered U. S. Patent Office.

Mr. Dealer:

Wherever you sold a refrigerator you can sell a Fahrenheitor as accessory. Uses 1 tray of ice plus ordinary salt to cool Quart Bottle in record time.

Ideal ice cube pail. Holds ice overnight.

Women love its beauty,
Men its utility.

Immediate Delivery

Dr. Peter Schlumbohm, *Manufacturer*
41 Murray St., New York 7, N. Y.

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Suggests Dropping of Term 'Quick-Freezing'

(Continued from Page 10, Column 5)

minor changes in design in the post-war period.

While on this point, let me sound a warning to guide your selling, advertising, and promotion people straight on the subject of sweating of low temperature fixtures. An inspection of the psychrometric chart, and a study of weather conditions in many areas in the United States will indicate that overly optimistic statements are not in order on this point.

Freezing Temperatures

There is much excellent advice in Dr. Tressler's remarks which makers and users of home freezers, and locker plant operators and patrons should heed.

I am of the opinion that the refrigeration and frozen food industry could well drop the term "Quick Freezing." I do not deny its attention-attracting value as an advertising or sales promotion slogan. However, very rapid freezing methods and low freezing temperatures appear most valuable as a means of speeding commercial freezing production, or when large masses of material are to be frozen. They may possibly be of some value in a locker plant to move things through faster, but they are hardly necessary in a home freezer.

Family sized packages frozen at 0° F. or below, produce an excellent product when all the other points of the food technology of frozen foods involved prior to the freezing operation have been observed.

Regarding various methods of freezing, suitable for home and locker plant application, the preliminary work done at Geneva in 1942, showed little advantage when freezing family sized packages when fans were added to the plate or contact

Good vs. Bad Wrapping

How improper wrapping permits frozen meat to deteriorate as compared with that properly packaged is shown above.

method of freezing. This work is now being continued at Louisiana State University.

Results with 3 pound packages frozen by different methods are shown in Table 1.

The blast with 0° F. air and the plate methods produce practically identical results. Addition of blast to the plates is hardly justified, considering the added complications of construction and the added operating cost of the fan.

The limitations of small cabinets when freezing food certainly needs emphasis. Each manufacturer should make this clear in his literature and in his instruction books. One manufacturer's cabinets were definitely rated at 25 or 40 pounds of food per freezing, depending on the size of the condensing unit used.

The standard suggested by Dr. Tressler is:

1. Simple for the customer to understand.
2. Simple enough for a salesman to explain to the customer.
3. Conforms with good food technology.
4. Can be readily determined by simple tests with simple instruments.
5. Will not be difficult to design for.

TABLE 1
(Comparative Freezing Speed Data from L.S.U., Dole, and Frigidaire Cooperative Project at L.S.U.)

Method Used	Average Freezing Time (Hours)	Comparative Freezing Speed
0° F. Still Air	12	100 %
0° F. Air Blast	7	55.3%
Plate (Contact)	6	50 %
Plate, plus Blast	5.5	45.8%

Storage Temperatures

Dr. Tressler shows clearly that storage temperature and time are a function of each other. The lower the temperature, the longer the storage life of the food. This is true of all food refrigeration, but too many people who should know better, overlook the time factor.

The speaker's experience shows that some frozen foods show definite deterioration when stored at 10° F. in a matter of a few months. Due to the increasing use of commercial frozen foods, and the current excitement about the "combination refrigerator," I want to call attention to the work of Winter of the University of Minnesota in the following table which will be useful in determining the safe keeping time for frozen foods other than at 0° F.

Home freezers and the locker room of locker plants should be designed for 0° F., or below. Zero is adequate for 12 months' holding of most frozen foods, *if the food technology up to the start of the storage period has been properly handled.*

The *air* in the storage space should be held reasonably constant, that is, plus or minus 2 to 3° F., based on present knowledge. Work to see if more tolerance than this is permissible is now in progress.

Standards for Home Freezers

The R.E.A. specifications referred to by Dr. Tressler are excellent.

(Concluded on Page 12, Column 2)

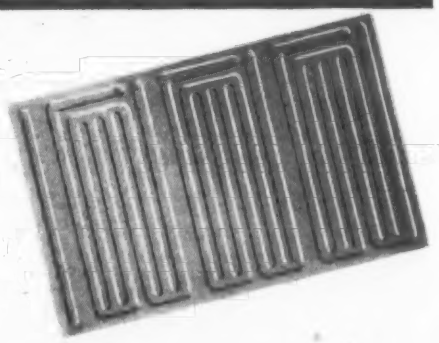
Investigate

SHERER

. . . decide **Now** on your source for

Refrigerator EQUIPMENT

WRITE
SHERER-GILLETT CO.
MARSHALL, MICHIGAN



Measured by the profit-and-loss yardstick, good business sense dictates STANGARD PRIME SURFACE COLD PLATES. LOW in cost, maintenance and operating expense, HIGH in efficiency, performance and dependability . . . STANGARD PRIME SURFACE COLD PLATES are the "Invisible Accountant" that creates a more profitable operation for you. Features? . . . High rate of heat acceptance, because the refrigerant circulates directly under the 100% prime surface plates in one continuous pass . . . reduced weight by elimination of internal tubing . . . defrosting without shut-downs . . . minimum power cost and dehydration. For **locker plants, display cases, food counters, soda fountains, trucks, liquid coolers, ice cream cabinets, farm milk coolers, farm freeze cabinets, frosted food refrigerators, beverage coolers, rivet chillers, low temperature test rooms,** STANGARD COLD PLATES reach new heights of refrigerating efficiency!

STANGARD DICKERSON'S long experience . . . the pioneering and developmental work we have done in the refrigeration industry . . . have uniquely qualified us to solve your refrigeration problems. Send your specifications to our engineers. We are geared to supply you with the sizes and shapes you need in STANGARD Prime Surface Cold Plates.

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experience

It takes years of engineering experience to make good Air and Water Cooled Condensing Units. Mills can't be beat!

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Filtrine
HIGH EFFICIENCY
WATER COOLERS
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53 Lexington Ave., Brooklyn 5, N. Y.
"Manufacturers for Over 40 Years"

FOOD
MUST BE
CONSERVED
Refrigeration today is performing a vital service by guarding and preserving for future use, priceless food which might otherwise be wasted. Write for literature.
GENERAL REFRIGERATION DIVISION
Yates-American Machine Co. Beloit, Wis.

Kipman
AUTOMATIC REFRIGERATION

Questions Raised on Freezer Standards

(Concluded from Page 11, Column 3)

They are brief and to the point. Yet, what difference does it make whether a capacitor, a repulsion induction, or even a gasoline motor is used, as long as the freezer performs the functions outlined?

Some of the test procedures the speaker has examined would make an excellent thesis subject for college students. They would try the souls of a factory test department and require instrumentation which few of our smaller manufacturers have or could afford.

If a reputable manufacturer supplies truthful, practical, and understandable descriptive material, puts the usual warranty on his product and can, upon reasonable request based on a reasonable doubt, back his statements with test data proving performance, what more is required?

Such "weasel wording" as "22° below freezing" should be eliminated. Sales, advertising, and promotion executives should check closer with their engineers who should weed out such ambiguous and confusing statements.

The matter of storage capacity rating is a difficult one, as shown by Dr. Tressler. An arbitrary rating of 40 pounds per cubic foot seems a sensible and practical answer.

Standards and test procedures should be kept as brief and simple as possible. They should allow the maximum freedom of design to secure the desired results. They should not be confused and complicated by a maze of legalistic "Mumbo Jumbo."

Quality of Food Frozen In Home Freezers

My own experience checks completely Dr. Tressler's remarks on this subject. Purdue university has shown that the quality of food produced in a home freezer can be superior even to that produced in a locker plant. The answer lies in speedy handling before freezing.

Hazards of Home Freezing

Dr. Tressler's remarks here again are packed with excellent data, debunking the too prevalent generality, "Do not refreeze thawed frozen foods." If Dr. Tressler's limitations and conclusions are followed, about all that results is a slight loss in quality unnoticeable to many people. The application of this generality to commercially frozen foods involves factors not met with in the home freezer and locker plant.

Other hazards such as power supply failures and mechanical failures are being emphasized by many, all out of proportion to their importance. Our utilities give us such good service today, that outside of "Acts of God," such as hurricanes, sleet storms, and the like, a power outage serious enough to affect a good home freezer is rare in the United States.

As to mechanical failures, loss of refrigerant charge, etc., the customer should buy a product backed by good local service, and that difficulty will be adequately cared for. Those who overlook the importance of good local service for a few dollars' saving in purchase price, usually learn sooner or later how bad a bargain they bought—even as thousands of automobile owners, household refrigerator owners, and commercial refrigerator users have learned in the past.

Simple warning devices are readily attached to home freezers, but even these are not foolproof, being subject to human negligence and mechanical or electrical failures themselves.

Possibly some enterprising insurance company will come through with a policy, so some of the chronic worriers and prophets of doom may rest peacefully.

Postwar Outlook

Now, let me speak to you more as a salesman than as an engineer.

First, may I warn more strongly than Dr. Tressler has of the importance of not stressing too heavily the smaller sizes of cabinets for those who can afford and have room for a larger one. When people start using home freezers, their food habits change. The Industry has learned that many purchasers of household cabinets purchased too small a model. History will surely repeat itself, if we do not do the right kind of sales job.

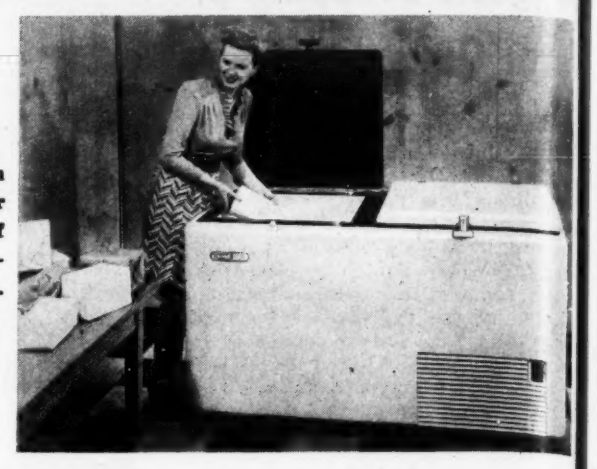
Second, our job in the postwar period is to sell freezing as a method of food preservation—forget the gadgets, gimcracks, and blue sky sales arguments. It matters little whether a home freezer is of the chest type or upright type, as long as it will do the job. My investigation shows both to have advantages and disadvantages. These are minor, viewed from the standpoint of the benefits of freezing and frozen food preservation. Let's not confuse the public by focusing attention on minor issues in our advertising, promotion, and sales efforts.

Third, let us not permit this new market to descend into the "price appeal gutter." First cost and operating cost are inconsequential compared to the convenience and good living a freezer will bring.

First costs of home freezers from reliable and reputable sources represented just and reasonable values before the war, and they will after the war. In a highly competitive industry such as ours, competition will take care of first costs. The customer either has or has not enough cash or credit to buy a home freezer.

Electric rates, thanks to our utilities, are so reasonable in most of the United States, that operating costs amount to much less than many housewives pay for cigarettes.

One of Ben-Hur's Postwar Freezer Models



The 12-ft. model in Ben-Hur's postwar three-model line of home and farm freezers is shown at right.

* * *

9 Freezer Distributors Named by Ben-Hur

MILWAUKEE — Appointment of nine new distributors for its postwar three-model line of Ben-Hur farm and home freezers has been announced by Ben-Hur Mfg. Co. here. Included are:

Canfield Supply Co. of Kingston, N. J.; J. Geo. Fischer & Sons, Inc., Saginaw, Mich.; Gould-Farmer Co., Inc., Syracuse, N. Y.; F. C. Hayer Co., Inc., Minneapolis; Mead Farm Equipment Co., Omaha, Neb.; Morley Brothers, Saginaw, Mich.; R. M. Wade & Co., Portland, Ore.; Youngstown Equipment Co., Boston; and the York Supply Co., Dayton, Ohio.

A HOT SUMMER IN WASHINGTON
MIGHT HAVE "MOVED" THE RHINE

Worthington Air Conditioning Helps Meet the Menace of the Expanding Maps

In a little-known windowless building somewhere near Washington, D. C., out of which 100,000 maps a day have poured for fighting forces overseas — air conditioning prevents the fraction of a millimeter's error which atmospheric changes might cause in military maps. Such errors might "change" the course of rivers . . . spoil the accuracy of artillery fire . . . put parachutists on the wrong side of the ridge.

Humidity makes map film and printing paper stretch. Dryness shrinks them.

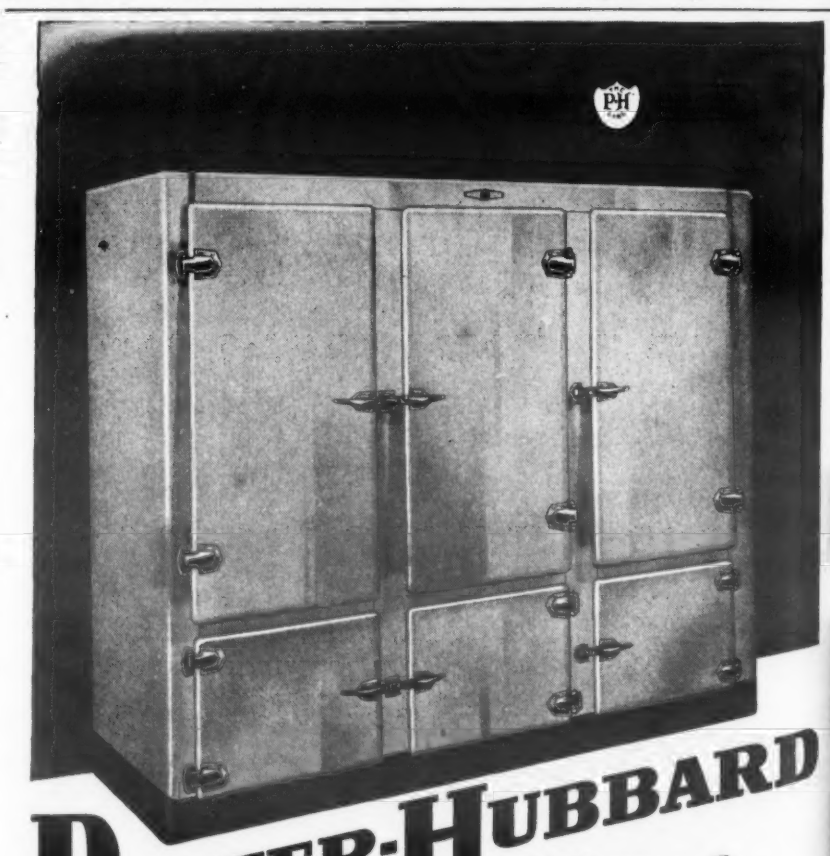
The two Worthington centrifugal refrigerating machines installed in this "map factory" are part of the broad line of equipment Worthington can supply for air conditioning purposes.

Making so many of the "vitals" . . . from Diesel engines, condensers and compressors to valves and V-belts . . . Worthington is best able to engineer completely integrated systems for best results.

Write for facts on Worthington's fifty years in air conditioning, data on historic installations, and catalog material. *Worthington Pump and Machinery Corporation, Harrison, N. J.*

AR 4-11

WORTH BEHIND THE NAME
WORTHINGTON
AIR CONDITIONING REFRIGERATION


PUFFER-HUBBARD
A Case of Good Refrigeration Engineering

Your inquiry is invited now. Ask us about available equipment.

- Practically every type of commercial refrigeration cabinet including Refrigerated Display Cases—Beverage Coolers—Walk-in Coolers—and Reach-In Cabinets . . . each bearing the mark of a good case.
- All porcelain exteriors and interiors. Equipped with patented and exclusive Grad-U-Matic Air Conditioning Systems.

PUFFER-HUBBARD MFG. CO.
★ *The Mark of a Good Case*
GRAND HAVEN, MICHIGAN, EST. 1898

Aiming for the Postwar Frozen Food Market

This close-up view shows how the customer will select and obtain a package of frozen food from the recently developed "Frez-O-Mat." When the customer opens the door of a compartment, a package automatically falls forward and another is pushed into place.

* * *

New Automatic Dispenser for Frozen Foods Provides Separate Refrigerated Compartments

DENVER — Development of an automatic dispenser for frozen foods and ice cream named the "Frez-O-Mat" has been announced by Milton Rifkin of 20th Century Marketing Systems here.

The new product is not in production, and at present no plans for manufacturing have been made, although Mr. Rifkin indicated that it may possibly be produced on a royalty basis.

Separate refrigerated compartments for each type of food or ice cream are provided in the unit, which is apparently self-contained. Each compartment has its own door, which represents a facsimile of the frozen food package.

The customer, explained Mr. Rifkin, merely has to pull open the door of the compartment she selects, and the dispensing device automatically tips the package forward into her hand and brings another package into place ready for the next sale.

"The dispenser eliminates stopping for packages, opening and closing of heavy doors; overcomes the customer's reluctance to open large doors and the fear of leaving doors open too long; avoids searching for items and price; prevents breaking finger nails, chilling hands, and eliminates the necessity of asking clerks questions," declared Mr. Rifkin.

"Due to the method of refrigeration there is no condensation, frosting, or accumulation of ice within the food compartments or around the door or door openings, or packages," claimed Mr. Rifkin. "This solves the eternal problem of chipping ice and in many cases loss of merchandise by defrosting.

"Being of vertical construction, it economizes on floor space by utilizing height. It does not accumulate dirt; the interior never has to be cleaned; no mirrors or glass have to be cleaned and constantly polished," he added.

"It is mobile and may be moved to various parts of the store, and it may be used to form island displays, or may be used in conjunction with standard shelves," he declared.

Emphasizing the point that ice cream can be dispensed from the cabinet, or a small cabinet devoted exclusively to ice cream sales, Mr. Rifkin said, "We are led to believe that this dispenser will make it possible for the first time to merchandise package ice cream in self-service operation by actual display and accessibility, and at the same time place it in a definite category as a staple food commodity.

"And by the same token, sales of package ice cream as well as frozen foods will not be limited to certain outlets, but like Coca Cola and similar items, will be sold everywhere. In cases where ice cream or frozen food manufacturers furnish cabinets and desire control of the merchandise to be dispensed, the dispenser is so set that this manufacturer's package and no other can be used in the dispenser.

"The construction of the cabinet is very simple and is not at all of a complicated nature. The unit is adaptable for coin mechanisms."

Schaefer Appoints 7 Freezer Outlets

MINNEAPOLIS — Schaefer, Inc., has appointed seven factory representatives for the firm's postwar line of home freezers.

The Schaefer representatives, who are now setting up distributor-dealers, are: Thomas Blackett, Detroit; Francis L. Toohey, Kansas City, Mo.; George Jutras, Boston; George Fulenwider, Charlotte, N. C.; T. H. Chamberlin, Los Angeles; L. A. Robinson, Seattle; and Stanley Ekstame, Minneapolis.

No final decisions have been reached on cabinet designs for the postwar home freezer models, but engineering and research have been continued during the war, however, and company officials say they do not expect reconversion to be a problem.

WFA Relaxes Restrictions On Ice Cream Content

WASHINGTON, D. C.—More and better ice cream can be expected soon, predict War Food Administration officials, following a recent WFA ruling which permits producers of frozen dairy products to use all the milk solids they need.

For the past two years ice cream firms have been limited to 65% of the milk solids they used during the first war year. During this time WFA once permitted a three-month "holiday" from this limitation.

Although there will be more ice cream and it will probably be richer in minerals and vitamins, it will not measure up to prewar standards because producer's use of butter fat is still restricted.

Headquarters

REFRIGERATOR HARDWARE
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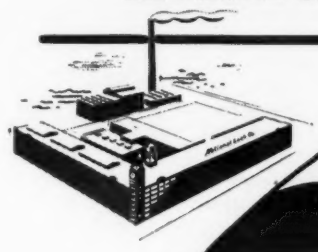

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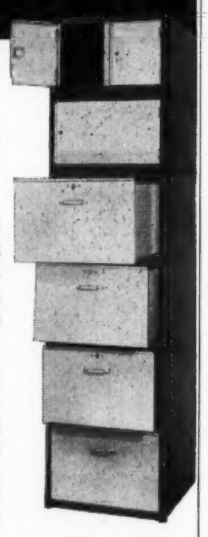

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Residue on Evaporation	0.01% by wgt. max.
Boiling Range (760mm)	—24.6° to —23.6°C.
Color	water white, clear

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1. Make sure system is thoroughly clean and dry before installing Methyl Chloride.
2. Allow for the fact that Methyl Chloride, per unit volume, weighs less than most other refrigerants.
3. Control (*i.e.*, capillary) tubes should be made smaller to allow for Methyl Chloride's lower viscosity, lower resistance to flow through pipes.
4. Speed up the compressor 5–10%, to handle increased volume of vapor.
5. Maintain dryness of refrigerant, system and lubricating oil at all times. Use *DRY* Du Pont Methyl Chloride.
6. Don't use Methyl Chloride with die castings, aluminum, zinc or magnesium and its alloys.

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Highspeed Airplanes of Future May Need A.C. To Combat Heat of Friction

Curtiss-Wright Engineer Describes Use Of Altitude Chambers In Test Work

BOSTON—If the speed of airplanes continues to be increased, we may soon reach the point where the interior of planes will have to be air conditioned instead of heated, declared W. E. Crowell of the Curtiss-Wright Corp., Buffalo, who presented a paper on altitude chambers before the fifty-first annual meeting of the American Society of Heating and Ventilating Engineers held in the Hotel Statler here recently.

When an airplane is flying, its passage through the air creates friction and resultant heat on the outer skin of the fuselage, he explained. In fact, the temperature rises as the square of the plane's velocity, when its speed is increased, he added.

MAY NEED COOLING

Thus, it may well be that we will eventually achieve high enough speeds with airplanes to require cooling equipment inside the plane, even though the plane may be traveling through the stratosphere at temperatures far below 0°, predicted Mr. Crowell.

And when that time comes, altitude chambers, which simulate high altitudes through use of refrigeration and heating equipment and vacuum pumps, and other devices, will serve in development of air conditioners for these planes, he said, just as these chambers are now extensively used to test, say, airplane heating equipment.

The altitude chamber at Curtiss-Wright's research laboratory in Buffalo, described by Mr. Crowell, is large enough to handle the fuselage of a pursuit ship, measuring 10 ft. I.D. (it roughly resembles a boiler in external appearance) by 30 ft. long.

Located directly above this chamber in a similar cylinder almost as large are all the evaporator coils and cold air circulating fans, and the three-stage "Freon-12" refrigerating system which develops 36 tons capacity at an evaporator temperature of -85° F.

Two large ducts connect the upper shell with the lower shell or test chamber. Each duct contains two sections for the cold air which is blown down from the evaporator coils and a center section through which the returning air can again pass into the upper shell, according to Mr. Crowell. Dampers in these ducts actuated by a compressed air diaphragm motor provide most of the temperature control, he said.

Rotary vacuum pumps, which are employed to simulate high altitude air pressures, total 150 hp. in this system, and can be used in parallel single stage operation or in series two-stage operation.

For security reasons, Mr. Crowell could not reveal the maximum performance capabilities of the equipment installed for this altitude chamber, but he did say that requirements of one of the tests preceding acceptance called for raising the altitude in the chamber from ground level to 35,000 ft. and simultaneously reducing the temperature from 60° to -70° F. in nine minutes. Even this rate of climb is much more rapid than that of a plane in actual flight, he pointed out.

HEAVILY INSULATED

Interior of the two shells is insulated with cork 6 in. thick to reduce the heat load given off by the steel shell when the air in the chamber is rapidly cooled down. By using the principle of the masonry arch, the cork is fitted in tightly without the use of any adhesive or fasteners.

This is necessary, explained Mr. Crowell, to prevent the cork flying off the wall when a powerful vacuum is effected within the chamber. Ordinary fastening methods would be useless during high altitude "flights." Exterior of both shells has two inches of insulation.

There are two exterior control stations for operation of the chamber. At the main control station a large oval port flanked by controls for all the equipment permits observance of most of the interior. Three air operated devices control the rate of climb, temperature and pressure automatically, and the operator is in constant telephonic communication with persons inside the chamber, the medical observer, and the man controlling the air lock. Other sets of instruments for the equipment being tested usually are located at this main control station.

"It is sometimes necessary for persons to enter or leave the main test chamber while it is at altitude conditions," pointed out Mr. Crowell. "In order to do this they must first enter the man lock, which is a small chamber attached to one end of the main chamber.

EQUALIZING PRESSURE

"If they enter from the main chamber, then the man lock pressure is first made equal to the chamber pressure. After entering the man lock, the men close the door through which they have just passed and then the man lock pressure altitude is lowered. When the pressure equals atmospheric pressure, the outside door may be opened and the men step out.

"If simulated altitudes are high enough during this operation the men carry portable walk-around oxygen bottles when transferring from the main chamber to the man lock."

Advantages of using such an altitude chamber to test men and materials are obvious, for it is certainly much simpler to conduct tests on the ground than in actual flight, observed Mr. Crowell.

There is another important advantage, however, which he stressed. "It has been the experience of one aircraft company that experimental flight testing of larger twin engine airplanes costs roughly $1,000 overall for a three or four hour flight, whereas the overall cost of operating a large altitude chamber is about $35 an hour," he said.

Such altitude chambers as the one in question, do not, admitted Mr. Crowell, have any provision for simulating the motion of the plane through air. Such a complete all-around wind tunnel would be more expensive than any aircraft firm could afford to build.

The lack of a wind tunnel arrangement does not seriously handicap the average altitude test chamber, however, for most of the equipment usually tested is fitted inside the airplane anyway, he declared.

Numerous problems, affecting both men and materials, face the airplane industry, particularly in connection with high altitude flying, and the altitude chambers will certainly play a most important role in their solution, added Mr. Crowell.

In dealing with men, there are four major problems, he explained. First, the oxygen supply at higher altitudes is not sufficient for human beings and air pressure is not strong enough to force oxygen into the blood stream.

"In order to exist at an altitude much higher than 40,000 ft., the flier must be surrounded by a local atmospheric pressure sufficient to force the oxygen into the blood stream. This is accomplished by using pressurized cabins, pressurized suits, and other pressurizing means.

"Another change of which man can tolerate very little is that of temperature. He must be supplied with added heat or clothing if his skin temperature drops much below 88° F. and must have external cooling if his skin temperature rises much above this figure," said Mr. Crowell.

"Clothing is used as an insulation against changes of temperature. This gets very bulky if it is sufficient to insulate for temperatures as low as -70° F., which are often met in the stratosphere. Actually temperatures of -110° F. have been found in the stratosphere."

CAN BE HARMFUL

Another factor which makes it discomforting and even hazardous for man to ascend to high altitudes is "aeroebmolism," an illness similar to the diver's "bends," said Mr. Crowell.

"It is generally considered to be caused by the gases which are normally entrained in the blood stream and tissues coming out of solution and forming bubbles. These bubbles often collect near the joints and become either annoying or extremely painful, depending on the severity of the condition.

"The only known remedy at pres-

(Concluded on Page 15, Column 1)

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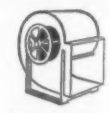
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Experiments In Altitude Chambers Reveal Many Flight Problems for Men & Material

(Concluded from Page 14, Column 5)

ent is to increase the pressure of the atmosphere around the person in order to put those gases back into solution. This is done either by pressurization such as with pressure cabins or by descending to a lower altitude where the pressure is greater.

"Almost everybody is familiar with ear trouble which occurs with rapid changes of altitude or pressure. The sinuses are similarly affected. Another result of pressure change is the expansion of abdominal gases. If these cannot be readily relieved, they become pocketed, and as the pressure surrounding a person is lowered, the gas in the pocket expands and causes distention of the bowels.

TROUBLES WITH OXYGEN

"Fliers who have breathed oxygen for a long time such as on long bombing missions are often aware of a raw throat and nostrils due to the breathing of bone dry oxygen," continued Mr. Crowell. "Oxygen has to be bone dry so that it won't freeze in the regulators.

"Not much experience has yet been accumulated on pressure cabins for airplanes, but it is predicted that dehydration of the personnel in these cabins may be a serious problem when flying at high altitudes unless some arrangement is made to humidify the air."

In addition creating other problems affecting personnel, high altitude flying at extremely low temperatures and pressures seriously affects equipment, stated Mr. Crowell.

Metals, for example, may become quite brittle at extremely low temperatures, while the rapid expansion and contraction of metal, say in a machine gun, during a climb from 120° F. (on the ground) to -100° F. (in the stratosphere) may seriously affect precision parts.

ELECTRICAL EQUIPMENT

Electrical equipment "acts up" at high altitudes, also. Due to low pressures, there is considerable sparking and corona discharge, while brushes on d.c. generators wear excessively, the latter being chiefly the result of low moisture content of the air. It seems that moisture in the air, or combined with other substances, acts as a lubricant, according to Mr. Crowell.

"Some of the problems encountered in high altitude flight are more or less familiar to heating and ventilating engineers," he declared. "Airplane heating is one of these.

"Offhand, it may look like a fairly simple job to install a heater and some ducts in an airplane and thereby obtain satisfactory heat. But one of the first considerations confronting the designer is that of weight. Aircraft engineers are well aware of the saying, '$100 a pound.'

"It means that for every pound of dead weight saved, the earning capacity of the airplane is increased $100 during its lifetime. Some airline operators think $200 a pound is nearer the correct value.

"The constant struggle is to achieve the optimum balance between weight and comfort. Where you try to save weight by making the ducts smaller and selecting the smallest heater possible, sometimes you find that the smallest heater is the least efficient or has the least output so you try to counteract that by insulating the cabin. Immediately up goes the weight again.

"At high altitudes, the skin of the airplane gets very cold; in fact, nearly as cold as the outside air. This brings the 'cold wall effect' into the selection of comfort conditions. Radiation from a man's body to the cold wall is quite appreciable and insulation must again be considered.

"So important is this 'cold wall effect' that cabin temperatures taken during acceptance tests for aircraft heating systems are sometimes obtained by installing the thermocouples in small aluminum blocks painted dull black. This method will give a reading lower than the actual air temperature but will be a better indication of the degree of warmth felt by an individual inside the cabin."

Sealed Cabins In Douglas Transports To Have Cooling on Hot Summer Days

NEW YORK CITY — Air conditioned, controlled-temperature passenger cabins will be an important feature of the new fleet of 50 giant four-engined Douglas transports in which United Air Lines is investing $25,000,000.

The 50 transports will be comprised of 35 DC-6's capable of carrying 50 passengers from California to New York in eight and one-half hours, and 15 DC-4's of 44-passenger capacity.

Tentative specifications for the DC-6 provide for two superchargers, mounted on the inboard engine, to supply compressed air for pressurizing the cabin by means of ducts leading into the cabin and containing adjustable openings.

Because the act of compressing air generates heat, it will be necessary on hot days to employ a means of cooling the cabin. This would insure passenger comfort even with outside temperatures of 100° F. or more. So that the pressure system will function efficiently, all parts of the cabin and the cockpit will be sealed tightly.

Airplane supercharging and pressurization, according to W. W. Davies, United Air Lines' research engineer, will provide "living-room comfort" for passengers aboard tomorrow's luxury liners flying at altitudes of 10,000 to 25,000 feet.

In designing these planes, aviation engineers and medical experts got together to solve the problem of enabling gasoline engines to function at extreme heights and, at the same time, provide the maximum in comfort for human beings. A supercharger furnished the answer to the engine problem by compressing the thin upper air so the engine could obtain enough oxygen for proper combustion. But there still remained the matter of human reaction to altitudes above six miles up, where air pressure is only one-quarter as much as at sea level.

The practical flying level for the DC-4 is expected to be about 10,000 feet, while the DC-6 will fly at 15,000 to 18,000 feet. The big cabins of the DC-6's, approximately 64 feet long, 10 feet wide, and over 7 feet high, will be pressurized to make possible an apparent altitude considerably lower than the actual one. For example, when the plane reaches 16,000 feet, the interior pressure would be equal to Denver's mile-high air, while at 20,000 feet the pressure would be comparable to the air of some mountain resort.

At high altitudes or on cold days when the heat generated by the air compression is not sufficient to keep the cabin warm, it is planned to supply additional heat through internal combustion-type heaters. These units, using gasoline as a fuel, are designed to maintain desirable inside temperatures when those outside range from 40 to 50 below zero.

According to present plans, cabin ventilation will be maintained at an average of 20 cubic feet per minute per passenger, sufficient to completely change the air approximately every two minutes.

Insulation for heat and sound proofing is expected to be a glass fiber material similar to that employed by United in re-fitting as passenger cargo planes the DC-3 transports recently returned by the Army.

Wins Promotion

ELLSWORTH GILBERT

Recently named sales promotion manager for Frigidaire, he was formerly sales training manager of the appliance division. He has been with the company for 15 years.

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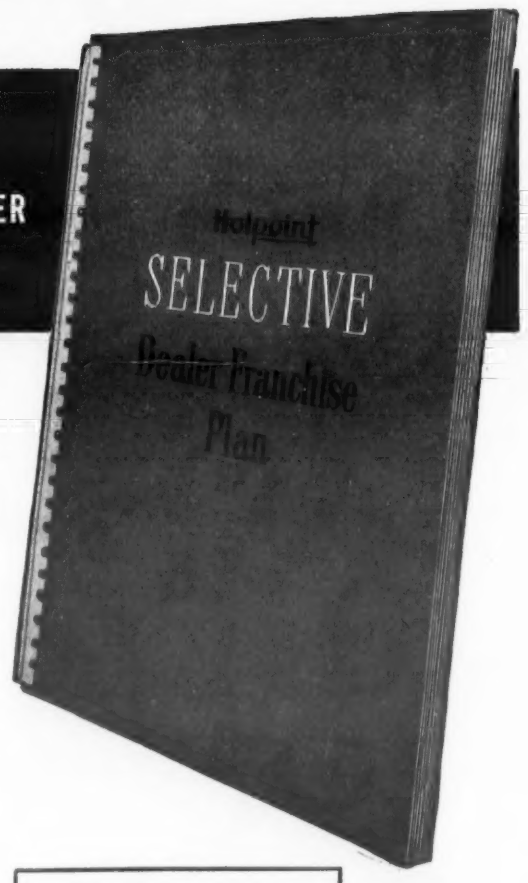

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'Peace'--and Chaos Just Ahead

A PHENOMENON readily recognizable by any adult is the telescoping of time as one grows older. It seems just like yesterday that Junior was a baby. And that little ragamuffin next door—why it's been no time at all since he was crushing your flower beds with his tricycle. Can it be true that he is the bronzed man-of-war who's back now with all those heroic ribbons decorating his chest?

What wedding anniversary did you say? Impossible! And so on. Time doesn't merely fly—it whooshes past, jet-propelled.

So it is that whether the war is over tomorrow, next summer, or a year from now, "peace" will come before any of us are ready for it, or expecting it.

All of a sudden there will be a clanging of bells, a glorious sense of relief and joy, and then we'll find ourselves smack up against the dock-dangdest set of problems we have ever faced as a nation or as individuals.

International problems, national problems, local problems, business problems, veteran's problems, personal problems—they'll be all around us in too great number and complexity for successful concentration on any one.

That's why we say that officialdom, in its checkmating of reconversion activities and its frowning upon reconversion thinking, may be storing up serious troubles, both for the administrators themselves and for us common folk.

Wars always end. This one—both in its European and Asiatic phases—is rapidly nearing a climax, "as any fool can plainly see" (and most Americans aren't fools!).

No other war in all history has so disrupted world economy. No other generation has ever created for itself so titanic a set of headaches as we shall have to suffer when it comes time to put the shattered pieces of the world economic order back together again.

All of us agree that every man and every factory which possibly can be utilized toward ending the war more quickly, thus saving lives, should so be utilized.

But it is inevitably true that there are men and facilities who are not and probably cannot contribute directly toward winning the war more quickly. It is the suppression of these facilities and the wastage of these men—forces which could be put to work preparing for peacetime jobs for returning servicemen—that seems like a crying shame.

Just as our military leaders wisely decided to throw a few punches at the Japs while battling Germany on a major scale (instead of concentrating all forces on one war at a time), so it might be the part of wisdom to allow a little work to be done toward insuring peacetime employment while concentrating our major energies on the successful prosecution of the war.

Before we know it, or realize it, or are ready for it, "peace" will be here. And it will be fully as great a shock to our economy, and our habits of living and thinking, as was Pearl Harbor.

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Improvements In Commercial Boxes Suggested by Gov't Cafeteria Chief

Wartime Conditions Aggravate Problems In 56 Washington, D. C., Cafeterias

WASHINGTON, D. C. — Troubles (and apparently there are a lot of them) that are encountered in the refrigerating equipment installed in 56 Government cafeterias in this district were described for the Baltimore-Washington Section of American Society of Refrigerating Engineers recently by Miss Mabel Ashenfelter, superintendent of cafeterias, Welfare and Recreational Association, Public Buildings and Grounds department.

Locker industry problems were also discussed at the same meeting by F. K. Warner, senior extension meat specialist, U. S. Department of Agriculture.

FIRST WOMAN SPEAKER

The first woman ever to address the section, Miss Ashenfelter pointed out that the daily volume of food served to government employes averages 140,000 meals. Approximately 10% is breakfast, 3% dinner, and 87% lunches.

Miss Ashenfelter laid the blame for most of the troubles on faulty design of the locations of the equipment and also in some instances to inherently inadequate refrigerating equipment and lack of proper installation. However, she admitted some of the troubles might be due to lack of proper operation.

These food dispensing units present a special problem in the storage of perishables—being obliged to store supplies for three days or more when a holiday comes at a week-end. The comparison between them and commercial cafeterias emphasizes the difference in demand for refrigeration, said Miss Ashenfelter.

The cafeterias receive daily deliveries of nearly all perishable merchandise. The problems of war have necessitated the storage of a great part of the perishables, at least, over night. Milk is now delivered late in the day and must usually be considered as the supply for the following day. Meat and fowl must be stored two or three days; vegetables only one day.

The two items of equipment known to be essential in the protection of restaurant operation, refrigeration and dish-washing, are the ones about which the government consults them to the least degree, asserted the speaker. Failure of either produces the most disastrous results.

Something has been learned by trial and error about the type of dish-washers that answers the purpose best, but we have not succeeded in having the government write specifications that will close the door to the poorest and weakest, she said.

So long as the manufacturer who is able to build a tank and install some pipes and a pump, and a motor, can fulfill the specification and have it accepted—so long will the government institutions suffer from faulty machines, commented the speaker.

The cafeterias have suffered greatly from failures of refrigeration during the last three years, she averred. In some cases, it can be traced directly to overloading, in others, to faulty construction and poor materials.

REFRIGERATOR REQUIREMENTS

The requirements of a refrigerator have not greatly changed since its introduction. They are:

A. Entire automatic operation.

B. Must have a tightly enclosed refrigerant circuit.

C. Should operate reliably under all conditions, and "we are still seeking one," she said.

It is customary for the Federal Works Agency, which designs government buildings, to have its architects work on plans for the cafeterias as soon as the general plans for a new building have been drawn. For the past 15 years, admitted the speaker, the association has been consulted concerning floor plans and division of the space allotted to cafeteria purposes. Unfortunately, it sometimes has been necessary to accept a very poor arrangement or a location that is basically unsuited to the service of food.

After the space allotment has been divided to locate all necessary service units, she said, the struggle to reconcile and balance the equipment begins. The architect who designs the building may specialize in one line or another—such as air conditioning. If so, the cafeteria will be included in the general plans. In other cases, it is designed for entirely independent operation. Usually, refrigeration is planned as a unit separate from any similar service in the building.

BASIC CAFETERIA PLANS

Basic plans call for division of space in separate compartments for meat, dairy products, fruits and vegetables, cooked food, bakers' supplies, and salads. It is very desirable, asserted the speaker, to have a compartment that will hold frosted fruits and vegetables. Cracked ice must be stored. Also, adequate space must be provided for garbage. Counter-boxes are almost a necessity, unless the operation is very small.

Cafeteria operators are usually able to obtain adjustments of details of space division, but not location. Increase of mechanical capacity, unfortunately, is not considered. The subcontractor has a certain sum of money with which to work, and he will not consider any changes that involve greater expense. If he is obliging, he will attempt to please the operator.

The District of Columbia health law requires food supplies to be placed 18 inches from the floor, so that must be the height of the lowest shelf. The standard food or bun pan does not exceed 18 inches—which is a practical depth for standard shelving. Anything wider is beyond the reach of women and it is wasted space. Meat boxes should have one wall supplied with just one shelf or platform—18 inches from the floor. Dairy and vegetable boxes require the same space.

STORAGE ARRANGEMENT

This arrangement provides for storage of barrels or stacks of crates, boxes, and hampers, and the construction may be like a skid platform —probably of hard wood in removable sections.

Floor drains are a mystery. It is a problem that so far has no solution. Why one set of boxes should have so much drip (without any baffles) that all food must be covered as from rain, the speaker said she did not know.

In many cases of war-time boxes, the floor drains are set in place by the plumber without consulting the mechanic who lays the floor. It is almost incredible that there should be so many floor drains set at the highest point of the floor. It would be wonderful to have the condensation of moisture or flood from defrosting carried off by a shallow rounded trough leading to a drain and fitted with a removable filter or drain-plate, declared Miss Ashenfelter.

Lights in refrigerated cabinets should be protected from breakage by handling of merchandise, and located in the best position to provide illumination without shadows.

Gaskets are important, but not generally satisfactory. The black rubber gaskets quickly become sticky and a tar-like substance adheres to the hands. At points of heaviest wear the gaskets become thin, and temperature is increased by air-leaks, she said.

HARDWARE COMPLAINTS

Hardware is frequently too light for the strain put upon it; is brittle or easily forced out of shape. Handle, latch, and keeper all need to be improved. The keeper is the weak spot—it frequently needs tightening to enable the tongue to fit.

Door springs also are too weak to withstand the constant use. A lock such as provided within the door handle is a joke, according to Miss Ashenfelter. Anyone can open the war-time lock with a screw-driver. Good and safe locks are essential—in these times almost as important as the combination of the safe.

Additional grievances of the operators against the refrigerators, she said, are:

1. Poor floors that are constantly wet.

2. Shelving that is patterned after a display for a grocery store.

3. Doors that do not fit tightly.

4. Equipment that will break down under the strain of hot weather—when food at room temperature is from 20° to 50° warmer than food supplies received in cold weather.

At the request of Federal Works Agency, an attempt has been made to draw plans for "the perfect cafeteria," including one, two, and four counters, in which the size of the unit, all equipment and facilities will be adequate, she added.

Miss Ashenfelter discussed in some

(Concluded on Page 19, Column 1)

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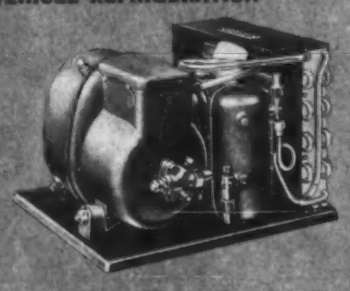

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Problems of Cafeterias & Locker Plants Discussed by Baltimore-Washington A.S.R.E.

(Concluded from Page 18, Column 5)

detail what the specifications for such a cafeteria should include.

Also, she said, since we may hope for many improvements as opportunities return to manufacturers, two items may be mentioned that will facilitate the merchandising of food:

First, a display counter that will hold frozen salads and desserts at the proper temperature providing insulation and transparent material can be reconciled.

ICED TEA PROBLEM

Second, and here the speaker hurled a distinct challenge at the beverage cooler manufacturers, is the problem of providing iced tea without the resultant mess from the use of ice and pouring.

Making iced tea in large vessels requires gallons of boiling water that must be chilled quickly, and the mass of the vessels retains the heat so long that it is wasteful of ice when poured into the glasses. Why could we not, she asked, have a refrigerated cooler, with sufficient capacity, and a faucet that will release a certain amount of tea, diluted with very cold water, that would eliminate the pouring?

However, asserted Miss Ashenfelter, iced tea must have ice in it, and so the problem still remains.

In closing, she added: "We look forward to the day of the Perfect Cafeteria. In it, the refrigeration never will be temperamental. It will be as dependable as are public services. And at that time, I most fervently hope that the cafeteria operators will have the knowledge to use the machinery with intelligence. With this combination, the installation would be sturdy enough to stick to its job throughout the hot weather.

In his discussion of locker plants, Mr. Warner explained his function as helping farm families get the most value out of their meat, and in so doing, he keeps in touch with locker plant and refrigeration personnel. It is estimated that a family of five or six persons consumes about 8,500 pounds of food per year, a very considerable portion of which consists of meat, hence the importance of getting the most value from it.

SUCCESSFUL LOCKER PLANTS

The two most important problems, according to Mr. Warner, in the successful operation of a locker plant are temperature and engineering.

If foods are kept at the proper uniform temperature, they can be successfully preserved for many months, said the speaker. If trouble results, the first thing to look for is the temperature of the compartment. Bacteria and mold will grow at 15° F., and foods held at temperatures above 0° F. will not last as long as those held at sub-zero temperatures.

Improper storage conditions, asserted Mr. Warner, are also responsible for many troubles. People are not familiar with refrigeration principles or operation characteristics and must be taught how to get the best use of their lockers.

Mr. Warner insisted that he was not an engineer but gained his knowledge of refrigeration from the late John T. Bowen, for many years senior mechanical engineer of the Department of Agriculture, and affectionately remembered by many in the refrigeration industry.

The speaker emphasized that some salesmen frequently sacrifice good engineering principles to get the order.

"Messrs. Skimp & Co.," said he, will offer an installation that they know is not based on good engineering in order to meet competition.

Inherent troubles may not develop until after the equipment has been installed for some length of time.

POOR ENGINEERING

Extension personnel who are not refrigeration engineers, said he, are frequently confronted with the difficult problem of advising locker plant users on troubles that are obviously due to poor engineering.

Mr. Warner called on the industry to protect locker plant users by offering only well engineered plants and help eliminate those companies offering sub-standard equipment.

He cited one installation where the temperature differential between the coil and the compartment was 34° F. Such inadequate equipment or operation frequently causes high power bills. Kilowatt consumption, said he, varies from 34 to 99 kwh. per year, part of the difference being due in many instances to poor equipment.

Another point that is often overlooked and results in increased cost, said Mr. Warner, is the routing of traffic through the locker with the resultant retracing of steps and additional manhours.

According to S. T. Warrington, Senior Economist, Department of Agriculture, labor represents about 40% of the cost of operation of a locker plant, he said.

COSTS RISING RAPIDLY

Mr. Warner called attention to the rapidly rising costs of locker plants and warned the industry against letting these high prices destroy the business. Pre-war prices averaged between $25 and $35 per unit for a 500 locker plant. Now, they range from $50 to $60 per locker. Service charges formerly averaged about $10 per year, but now are sometimes as high as $25 per locker. A charge of $17.50 per locker per year puts it in the luxury class and is not economically justifiable.

In closing, the speaker said the two most common troubles found in locker plants are (a) ice forming on the walls and (b) dessicated food in the locker. The two most common faults in engineering are too great a temperature differential and poor insulation, he declared.

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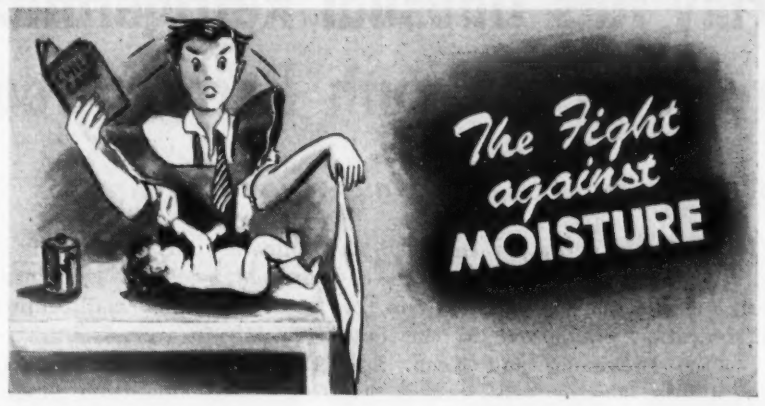
J. T. Forlow, Jr., has charge of general service, and Ed. McBride will handle radio operations. Also connected with the firm are Preston A. Burns and Flake S. Allen.



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Army Has Unusual Refrigeration Problems In South Pacific Areas

But Technicians Keep Units Operating

Editor's Note: On this and the following three pages is a detailed account of the problems encountered by Army refrigeration engineers and technicians in operating and maintaining refrigeration equipment in the South Pacific theater.

Lt. Dickinson and Tech. Sgt. Rivers discuss the various complaints, particularly those resulting from operation under conditions of high humidity and temperature that characterize the tropics. Problems peculiar to the Army are also reported.

By Lt. Don Dickinson and Tech. Sgt. Allen C. Rivers

Refrigeration equipment used by the Army is of a wide variety of types and sizes. Beginning with barges of 200 tons cargo space and fitted with four 15 ton multi-temperature "Freon" systems, it includes ice plants from 1 ton to 15 tons, mobile and portable units of 10 cu. ft. to 4,300-cu. ft. capacity, as well as X-ray machines, ice cream freezers, and household refrigerators. This equipment is handled jointly by the Quartermaster Corps and the Corps of Engineers.

The allocation of refrigeration equipment, especially the smaller machines, is largely a Quartermaster function. Further, Quartermaster refrigeration companies are organized to operate and maintain subsistence depots, and also to operate certain types of 650-cu. ft. trucks used to transport rations up to 200 miles.

Responsibility for the construction of medium and large-sized installations falls to the Engineers. This includes the layout and construction of ice plants and subsistence depots, and the assembling of the prefabricated portable boxes in which the rations are stored.

Moreover, the maintenance and repair of this machinery, as well as that of all domestic and other organizational equipment is a mission of the Engineers. It is this latter phase of refrigeration with which this article is concerned. Specifically, such maintenance in a tropical climate, in the Southwest Pacific.

Small engineer detachments are established for the maintenance and repair of all types of refrigeration machinery. These organizations are well equipped for such work. Usually a shop is provided by the Base Engineer, refrigeration repair being part of the Base Utilities Section. Here will be a welding outfit, a small lathe, a drill press, an air compressor, and other miscellaneous machine tools.

In addition, the shop mechanics and those who answer service calls are each equipped with a set of hand tools such as refrigeration mechanics everywhere use. When such facilities are not available a motorized shop is provided. This is a comprehensive, compact machine shop mounted on a 2½ ton truck chassis—one of the prized pieces of equipment of the Corps of Engineers.

Whenever a new unit is unpacked, the compressor is dismantled and cleaned. Though sealed at the plant for overseas shipment, more often than not a thin film of rust will coat the inside of the crankcase and the piston walls. A long salt water voyage, followed by a storage period in a depot, always results in some moisture-laden air having penetrated inside the compressor.

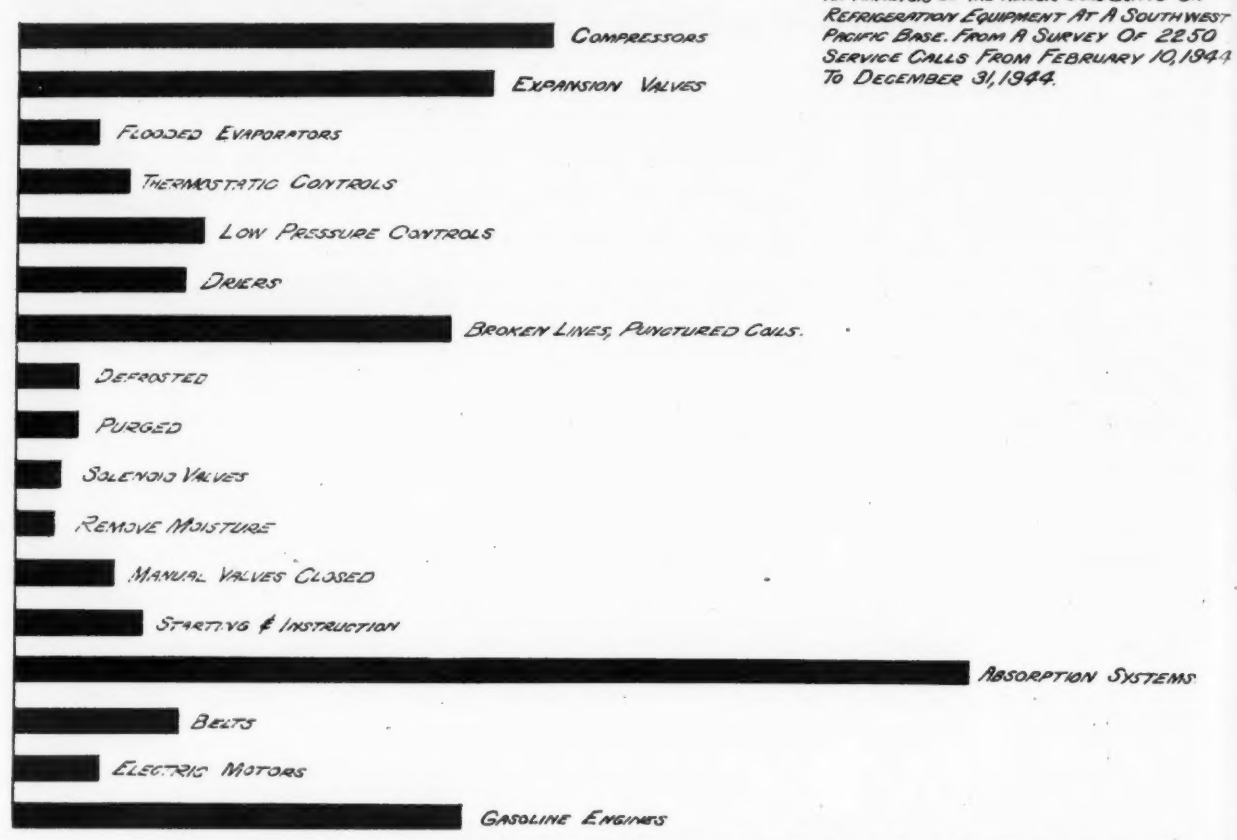
In the South Pacific there is no such thing as inside storage. If the machinery is protected at all from the elements, the unopened crates are put inside a portable type hut, the four sides of which are burlap, tarpaper, or simply a steel mesh to keep pilferers away. Covering with a tarpaulin as well still fails to keep supplies from being affected by moisture and mildew, the latter it seems, defying all efforts to subdue it.

Most compressors are from ¼-ton capacity to 3 tons, although a few are 15 tons. Twelve per cent of all service calls are due to compressor

(Continued on Page 21, Column 1)

Complaints Which the Army Encounters Most Frequently

An Analysis Of The Major Complaints On Refrigeration Equipment At A South West Pacific Base. From A Survey Of 2250 Service Calls From February 10, 1944 To December 31, 1944.



Frequency of major complaints in the operation of refrigeration at an Army base in the South Pacific can be compared in the above graph, which was prepared by Lt. Dickinson and Tech. Sgt. Rivers

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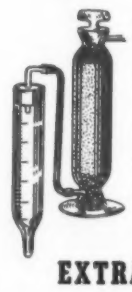
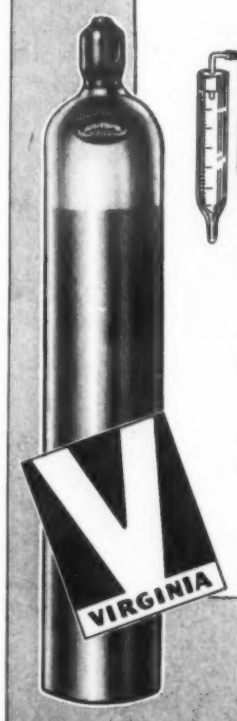


2. MOISTURE TEST

A sample of known weight from each cylinder is passed through P_2O_5 (a dessicant). Moisture calculated by the increased weight of the tube must not exceed 50 parts per million; low moisture prevents freeze-ups and oil-sludging.



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High Humidity Conditions In S. Pacific Create Many Repair Problems for Army

(Continued from Page 20, Column 5)

troubles. Of these complaints by far the most prevalent are seal leaks. And with this nearly always a lost charge before the leak is discovered and service requested. Eighty per cent of seal trouble lies in the neoprene washer, the average life of one over here being six weeks.

Refacing worn or grooved surfaces accounts for another sixth of seal faults. This is due largely to a shortage of oil, which itself is 10% of all compressor maintenance. The remaining small percentage of seal trouble is caused by the bellows; when these leak a replacement seal is always necessary. A contributing factor to seal difficulties is the high operating back pressures.

HEAD PRESSURES HIGH

High head pressures are, of course, a common thing in tropical climates. "Freon" will operate at 170 lbs., methyl chloride at 140 lbs., and sulphur dioxide at 90 lbs.

One manufacturer attempted to alleviate this condition by putting a small bootser condenser in series with and following the main condenser. Situated in front of the water radiator of the gasoline engine, it is cooled by air entering the radiator. But when vibration broke the connections in some of these auxiliary condensers and they were by-passed for repairs, no material increase in the pressure was noted on any of the machines.

Rapid carbonizing, especially on SO_2 systems, is one result of high head pressures—a crust 1/64 inch thick has been found upon removing the head plate. And there will always be excessive wear on compressor valves. It being difficult to secure replacements on this item, several substitutes and expedients have been tried.

MAKESHIFT FLUTTER VALVES

Flutter valves have been made of feeler gauges, of galvanized sheet metal, and even of hack saw blades, these latter having lasted for as long as 1,000 hours. Such attempts have been fairly successful, in spite of the fact that the metal has not the necessary resilience for a long period of operation.

Further effects of ever-present moisture are frozen compressors, gummed-up because of detrimental compounds formed of moisture and oil. Moreover, it is sometimes found the oil itself will present evidence of moisture upon opening a new can. Only improper handling or long storage should account for this.

Among compressor complaints which occur in about the frequency as in the United States are worn bearings, worn service valves, and leaky gaskets. When a compressor is brought into the shop to be dismantled for any reason, gaskets are replaced as common practice. Broken rings and scored piston walls are among the lesser difficulties.

Sealed units rarely cause trouble, and it is just as well. Replacement parts are hard to obtain, and it is difficult to improvise for them. Faults that occur are usually the result of carelessness on the part of the operator.

Frequently an organization will set up in a remote location, and connect a sealed unit to a mobile d.c. generator. Being designed for alternating current, the coils rapidly overheat and are often burned out before the overload relay can protect them.

A case of carelessness comes to mind of one such unit being dropped into 8 feet of salt water. It was quickly pulled out and examined. There were no apparent broken lines; so if the switch has been cleaned, the unit would have been little harmed by the accident. Instead, somebody sawed off the lines "to see if everything was all right inside."

KEEP AIRTIGHT

So long as the system remains airtight it will operate with minimum maintenance. But if the lines should be broken, perhaps by rough handling or vibration, moisture will enter. It freezes the rotary compressor blade, usually in a retracted position, causing it to cease to function as a pump.

Of the large number of calls due to expansion valves, only a few result in replacement of the valve itself. The most common complaint is no more than that the valve is out of adjustment. The organizational operator, often a cook or a mess sergeant, will attempt to make repairs himself at the first sign of abnormal operation rather than call a refrigeration mechanic.

Further, on a system having a spare valve on a by-pass line, it is often found that both expansion valves are open. In support the operator will glibly quote from a service manual to the effect that when starting up the unit "open all valves." This applies to service valves as well, the suction valve being sometimes back-seated and blocking off the low pressure control.

Blocked strainers are common. And somewhat less frequent are loose or disconnected bulbs. Diaphragms give no trouble.

Unevenly worn pins of expansion valves are filed down in the shop to make a smooth seat. Some new valves are received with uneven pins. Needles which have become pitted by moisture are cleaned up as well as possible and put back into service.

If the needle is pitted or grooved too badly, it must be replaced. New needles for expansion valves and float systems are made by engineer shop companies, which are well equipped for such machine work. A lost charge in the bulb is about the only reason an expansion valve is salvaged.

SAVE USEABLE PARTS

Even so, every usable part is retained, for where replacements are scarce, maximum use must be made of what is available. The bulb gas line even has its use; it is utilized as a capillary tube for ¼ ton machines, for new valves of less than ½ ton capacity are rare indeed.

Replacements on expansion valves run about 5% of all those brought into the shop for repairs. Automatic expansion valves are seldom encountered, thermostatic valves being the usual thing.

Repairs to flooded evaporators constitute 14% of refrigerant control maintenance. A few collapsed floats have been found, but for the most part it is needle trouble. Evaporator corrosion of SO_2 units is cleaned out with carbon tetrachloride. Rarely is a high-side float system seen over here.

Complaints on thermostatic and low pressure controls follow about the same pattern as in the United States. Except that again, as in the case of expansion valves, the percentage of replacements is lower, and for the same reason. The trouble is usually traced to the control being out of adjustment.

Broken springs, burned out points, and faulty wiring contribute their share, as well as loose or disconnected bulbs of the thermo control. Vibration on gasoline-driven units causes the bulbs of thermostatic switches to lose their charge; leaks at the fittings of low pressure controls result from the same cause.

If the bellows give trouble the control must be salvaged, as this is not a common stock replacement. Many such small items are not available in depots, for the small number of requests for them does not warrant their being stocked. It is intended that these parts be taken from salvaged units.

High pressure cut-outs seldom require maintenance. When one does give trouble it is quite apt to be on a ship. Here refrigeration machinery is often cramped into a restricted space such that no air can reach the condenser. Or the unit is installed in the galley, where the temperatures are nauseating.

WATCH THE SCREWDRIVER

When the control thus cuts out because of high head pressure, the seventh assistant electrician will tamper with it and get it out of adjustment—or else jam his trusty screwdriver into the mechanism and break the control.

It is well at this point to mention solenoid valves. They require repairs in about the same proportion as high pressure controls. Tropical day tem-

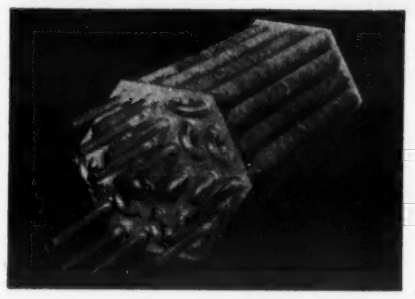
(Concluded on Page 22, Column 2)

REFRIGERATION ACCESSORIES

- Instantaneous Water and Beverage Coolers.
- Oil Separators.
- Two-Temperature Valves.
- Accumulator Heat Exchangers.
- Equalizer Tanks.
- Controlled Temperature Photographic Processing Units.
- X-Ray Refrigerating Units.

TEMPRITE PRODUCTS CORPORATION
47 PIQUETTE AVENUE DETROIT 2, MICHIGAN

ROME-CONDENSER
★ Jointless Type ★

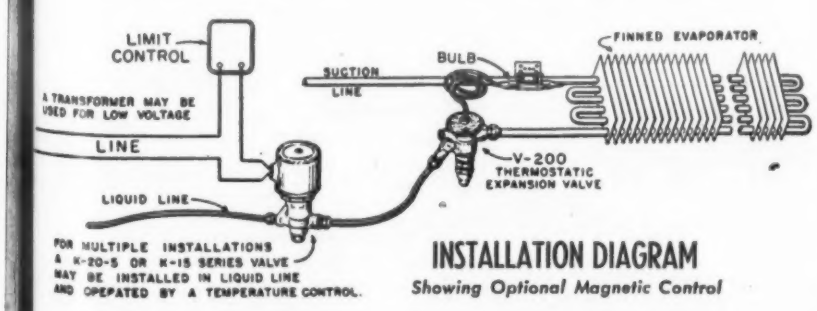


Rome Water Cooled Condenser Coils insure trouble-free condensing equipment. Used by leading compressor manufacturers.

ROME-TURNEY RADIATOR COMPANY
222 CANAL ST.
ROME, N. Y.

GENERAL CONTROLS
K-20-5 MAGNETIC VALVES
For Efficient Refrigeration

General Controls K-20-5 Magnetic Valve provides magnetic liquid or suction stops for Freon, Methyl Chloride and Sulphur Dioxide. It is a direct acting, single seated needle valve of simple, practical design, constructed of finest materials available. It is especially recommended for "fractional" tonnage installations, where constant tight shut-off is necessary.


LIMIT CONTROL
A TRANSFORMER MAY BE USED FOR LOW VOLTAGE
LINE
LIQUID LINE
SUCTION LINE
BULB
FINNED EVAPORATOR
V-200 THERMOSTATIC EXPANSION VALVE
FOR MULTIPLE INSTALLATIONS A K-20-5 OR K-15 SERIES VALVE MAY BE INSTALLED IN LIQUID LINE AND OPERATED BY A TEMPERATURE CONTROL.

INSTALLATION DIAGRAM
Showing Optional Magnetic Control

K-20-5 operates at high pressure, insuring positive control. Coils can be removed while valve is under pressure. Available for A. C. or D. C., any voltage. Maximum operating fluid temperature 240° F.

Write nearest Factory Branch for Catalog 528, or direct to:

GENERAL CONTROLS
801 ALLEN AVENUE GLENDALE 1, CALIF.
FACTORY BRANCHES: ATLANTA • NEW YORK CITY • BOSTON • CHICAGO KANSAS CITY • DALLAS • DENVER
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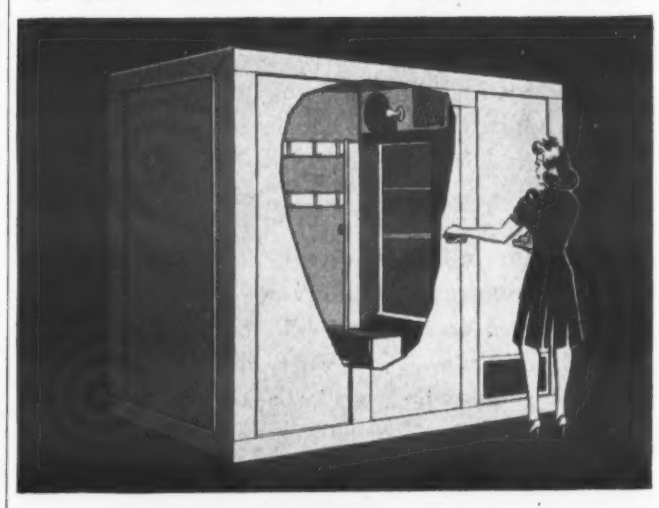
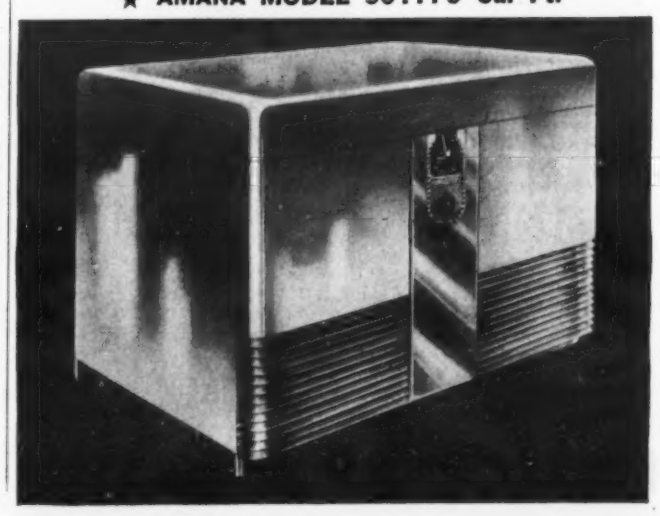
amana
Center of Attraction Wherever SHOWN!

Amana Freezers were the center of attraction at the Chicago Furniture Mart in January. Amana had what distributors and dealers were looking for . . . A LINE OF HOME FREEZERS that would satisfy all levels of the great backlog of demand waiting to buy these units when available.

★ AMANA MODEL 200 . . . FREEZER - COOLER



★ AMANA MODEL 90 . . . 9 Cu. Ft.



★ AMANA MODEL 50 . . . 5 Cu. Ft.

The AMANA name on a Home Freezer means years of success in refrigeration and frozen food storage units. AMANA pioneered the engineering and building of commercial Frozen Locker Plants throughout the country. This is ASSURANCE OF dependable Home Freezers . . . built by experienced manufacturers in a completely modern plant, manned by skilled refrigeration personnel.

An opportunity is open in a few territories for progressive distributors and dealers to join the AMANA organization. Your territory may be open on this outstanding line. Write today.

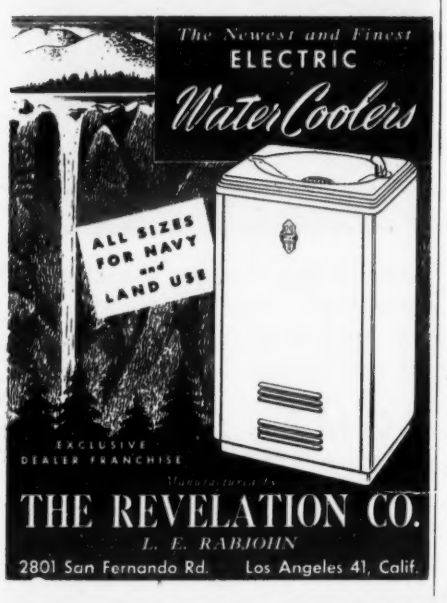
REFRIGERATION DIVISION
AMANA SOCIETY
AMANA, IOWA

WAR INDUSTRIES NEED REFRIGERATION

The use of refrigeration in industry has been greatly accelerated by the war. In peacetime this expansion may logically be expected to continue. Write for literature.

GENERAL REFRIGERATION DIVISION

Yates American Machine Co. Beloit, Wis.



Gasoline Motors Need More Maintenance Than Refrigeration Units, Army Finds

(continued from Page 21, Column 5)

peratures, and the resultant short cycling, both tend to work solenoid valves twice as hard as in a temperature climate. This is true especially on ships. Replacements due to burned out coils are low, however.

There are several types of mobile and portable refrigerators powered by gasoline engines. The most common mobile unit is one of 220-cu. ft. refrigerated space, mounted on a four-wheeled trailer. It is made in Australia, and has a 1½ ton methyl chloride plant. Quartermaster refrigeration companies operate fleets of 650-cu. ft. tractor-trailer vans, the 2 ton "Freon" units being gasoline driven.

PORTABLE REFRIGERATORS

Portable refrigerators vary from 10 cu. ft. to 4,300 cu. ft. The larger boxes are prefabricated before shipping, and the sections are assembled on the job. The exterior of the box is covered with sheet metal; the interior is sometimes of sheet metal, sometimes of tongue and groove lumber.

A 6 inch thickness of rock wool or spun glass provides the insulation. Quartermaster subsistence depots have several dozen such boxes in long rows, a shed being constructed over the installation to protect it from the sun. A front platform is for issuing rations, the refrigeration units being at the rear.

The condensing unit is methyl chloride or "Freon," driven either by an electric motor or a 10-hp. gasoline engine. Each arrangement has its advantages. The electrically powered plant requires less maintenance, runs with less noise, but is dependent on a centrol power supply. Those with gas engines, are, of course, independent; engine failure on one does not affect the whole installation. For this reason the latter are in the majority.

On these jobs refrigeration repairs are insignificant compared to the maintenance required by the gasoline engines. They run an average of 16 hours over a period of 24. Ignition systems give the most trouble.

Batteries have a short life. Where one would last six months in the temperate climate of the United States, three months is the most that can be expected of one over here. Short cycling due to the high day temperatures is a heavy drain on the battery. The hot climate itself materially shortens its life because of the increased electrolytic action.

BATTERIES SHORTLIVED

The ignition system takes six amperes while running; if the generator is not working and the battery must shoulder the entire load, a new one will not last twenty-four hours. It has recently been possible to replace 13 plate batteries with ones of 17 and 19 plates.

Distributor contact points are forever breaking. New ones have been made in the shop of feeler gauges, and once the spring of an old phonograph was utilized.

Most of these units have cranking time limiters. These attempt to start the engine from three to five times before giving it up as a bad job, opening then the starting circuit and the circuit to the ignition coil and solenoid valve until the operator appears.

They require little maintenance during the first several months. Then it becomes necessary to remove them and clean out the dirt. The small heating coils get out of adjustment, those which determine the cranking time and the interval between. And the internal wiring burns out.

Clutch trouble develops after four months service. When replacements are unavailable the worn clutch is taken into the shop and welded solid —a not very desirable practice in that the engine must start under a load.

LIFE OF V-BELTS

V-belts on these machines last from six to eight weeks if kept clean. Building an extension to the angle iron compressor support allows the compressor to be moved still further from the engine, obtaining the "last ounce of stretch" from the belts. This prolongs the agony for two more weeks.

The proper fuel for these small constant speed engines is the Army so-called "white" or low octane gasoline. If "red" gas is burned, that treated with lead tetraethyl, gummed-up cylinders quickly cause real trouble.

Major engine repairs are not ordinarily handled by the refrigeration detachment, this being a function of the Ordnance branch of the Army. Considering the length of time some of these installations have been operating, it is amazing how well they have stood up under adverse conditions.

Fractional horsepower electric motors require little maintenance if the power supply is regular. The motors will run hot, of course. A temperature of 150° has been recorded over a long running period, with no apparent ill effect. Such temperatures are caused not only by the tropical climate, but the generator itself may have spasmodic voltage surges or run on a low voltage or off frequency—all of which tends to overheat the coils.

Direct current motors have been installed too far from the generator, and the power loss in the transmission line materially reduces the e.m.f. at the motor. On d.c. motors a very troublesome complaint is that of short circuiting due to carbon from the brushes clogging the commutator. The high running temperature may have something to do with causing the carbon brushes to break down faster.

The effect of moisture penetrating the capacitor casing of an a.c. motor is to cause it to have a low starting torque, or to lose power under a load. The first evidence of capacitor trouble is noted after six months. Then about one in 10 must be replaced.

High pressure ammonia systems we have encountered are of comparatively recent installation. They have as yet presented few major maintenance problems. External factors affect the operation of such plants more than faults arising from the systems themselves. Condenser pressure is always high, often from 215 to 225 lbs. Such pressures require a great deal of purging, for at the correspondingly high temperatures ammonia breaks down faster into non-condensable gases.

It is important to situate the condenser so that it is protected from the afternoon sun, if possible on the east or south side of the plant. The temperature of the makeup water averages 83° F., but this is only 5% of the total. The water over the coils of an evaporative condenser runs from 92° to 95° F.

HIGH WATER TEMPERATURE

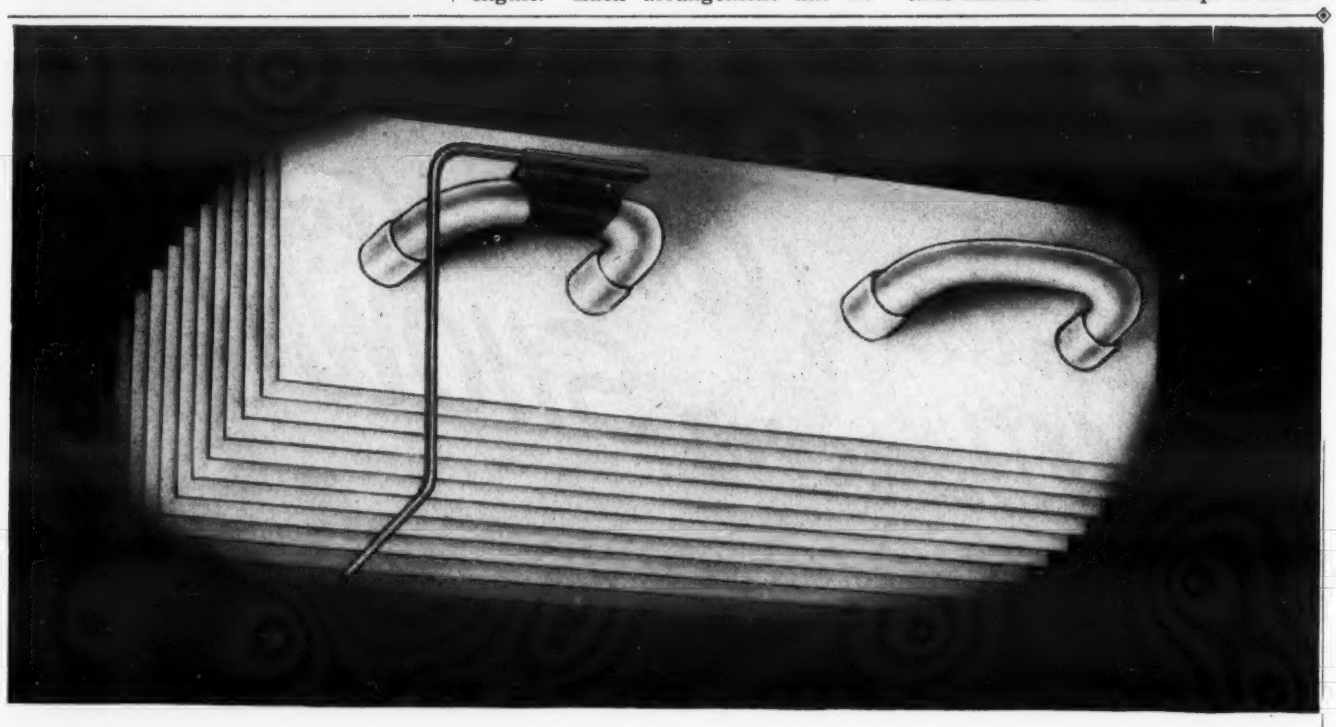
At one installation where water is plentiful there is no recirculation of the cooling water, and all that passes over the coils is allowed to run away. The pressure in this plant is 200 lbs. Approximately these same operating conditions are obtained if a cooling tower is properly installed.

At least one plant tried drilling larger holes in the spray tubes of an evaporative condenser, with negative results, of course. It was not the volume but the temperature of the water that was affecting condenser pressure.

The mineral content of the cooling water in some localities causes a grayish-brown scale to form on the outside surface of the tubes of evaporative condensers. This is especially noticeable on the upper or hot section. It is difficult to make brine with such water, prolonged agitation and even heating being necessary to dissolve the calcium chloride.

Aside from those issued by the Quartermaster Corps, many organizations bring along their own domestic refrigerators from America. As most of the rations in a theater

(Concluded on Page 23, Column 1)

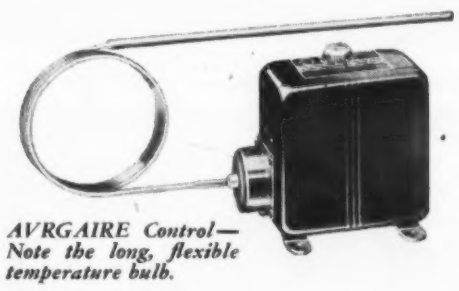


Proper Temperature Control—SAVES!

• Refrigeration protects critical food supplies against spoilage and waste . . . protects their quality. But the degree of this protection depends upon the efficiency of the automatic control.

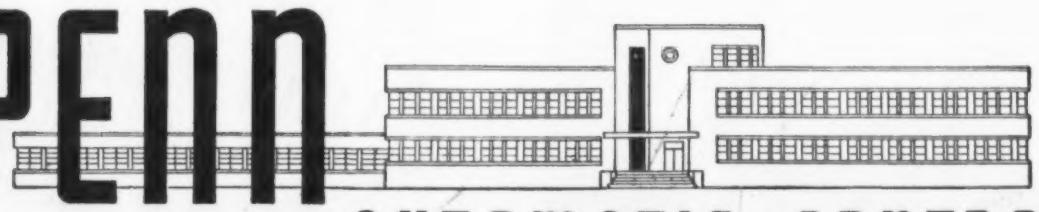
That's why Penn developed AVRGAIRE. Designed for walk-in coolers, reach-in boxes and all "above-freezing" applications, AVRGAIRE incorporates a *single, new-type temperature bulb that* is applied in an *entirely new and different manner.* Look at the above picture . . . see how one end of the bulb is clamped on the refrigerating coil while the balance is brought down and under. Result? The bulb is influenced by the *average temperature* of both coil and air. Thus, AVRGAIRE holds box temperature within extremely close limits without irregular short-cycling of the compressor. It automatically defrosts on each operating cycle when box load is normal, BUT delays defrosting when box is loaded with warm produce and extra cooling capacity is required. And it maintains proper humidity to minimize dehydration and "sliming" losses.

But get the full story on AVRGAIRE, complete with pictures and diagrams. Write *Penn Electric Switch Co., Goshen, Ind.* Export Division: 13 E. 40th St., New York 16, U.S.A. In Canada: Powerlite Devices, Ltd., Toronto, Ont.



AVRGAIRE Control— Note the long, flexible temperature bulb.

PENN



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

MORE GAUGE QUALITY —PLUS the "RECALIBRATOR"

Of course the first and foremost requirement of a pressure gauge is accuracy. But almost any gauge starts off accurate. The real measure of gauge quality is found in ability to stand up and *stay accurate.*

Marsh Gauges do. The Marsh reputation for making instruments of lasting accuracy is traditional. You would need no better reason for insisting on Marsh Gauges for every application. But you have still another reason—the Marsh "Recalibrator".

If some abnormal condition knocks a Marsh Gauge out of adjustment a twist of the "Recalibrator" screw will restore its accuracy at *all points* on the dial—a feat that cannot be accomplished with certainty by the conventional zero adjustment.

You get lasting accuracy when you select the Marsh Gauge . . . and on top of that the "Recalibrator".

JAS. P. MARSH CORP., 2067 Southport Avenue, Chicago 14, Illinois
Export Department: 155 East 44th St., New York 17, N. Y.

MARSH
Refrigeration Instruments

Unavoidable 'Rough Handling' as Army Moves Gives Refrigerators a 'Bad Time'

(Concluded from Page 22, Column 5)

of operations are of the non-perishable type, these household units are ample for the storage of butter, condensed milk, fruit juices, and other canned foods which once opened should be kept in a cool place. Hospitals store serums in them as well, and various special diet foods. Nearly half the domestic units in this theater are of the absorption type, with kerosene burners.

These refrigerators, of both Australian and American manufacture, have the advantage of being independent of outside power supply, and require little maintenance if kept clean. Their lowest box temperature that can be obtained over here is about 30°—which is sufficient, nevertheless, to make ice cubes and to cool the contents satisfactorily.

UNITS NEED CLEANING

Invariably there is a flue cleaning brush with each refrigerator, but a third of the service calls is recorded as cleaned, adjusted, and leveled." Replacement wicks, globes, and burners are available for these refrigerators, as well as complete unit assemblies.

Wicks and globes need considerable maintenance, burners being somewhat less troublesome. When globes are not available the top half of a beer can serves very well. Together, these three items are responsible for most of the repairs on absorption refrigerators.

Very often a poor grade of kerosene is used, or the fuel may have water in it. Several bad accidents have occurred with these refrigerators when it was attempted to substitute gasoline for kerosene in the burners.

COMPLETE REPLACEMENTS

No small number of complete assemblies have been replaced. When a system loses its charge it is scrapped, for there are no facilities on the islands for recharging it. Leaks are usually caused by rough handling.

Rough handling over here does not necessarily mean carelessness. Organizations are constantly on the move, seldom being static for any length of time. And each change of station means a journey over extremely rough roads, loading and unloading from a ship, followed by another truck ride. Such treatment is bound to give refrigeration machinery a bad time.

Many lines are broken this way, and lost charges result. The other major cause of leaks on refrigeration systems is vibration on those machines driven by gasoline engines.

It is apparent from the foregoing that many service calls are necessary due to the inexperience of the organizational operator. We make a special effort to give instruction when servicing a machine, being sure the operator himself is present while repairs are made.

PERSONNEL INSTRUCTED

When an outfit is issued refrigeration equipment, personal instruction is given right then by a refrigeration mechanic. The operator is shown how to pump down the condensing unit for repairs, and how to defrost it. He is instructed in adjusting the belts. The importance of keeping them free of grease and oil is stressed, as well as general cleanliness of the machine itself.

He is further cautioned against overloading the machine by attempting to obtain extremely low temperatures. If the unit is a small ice machine, a schedule for pulling the ice is worked out. Correct procedures—such as pulling alternate rows so as to distribute the load—are explained.

Crowding the schedule by pulling ice too often is discouraged. In a tropical climate a refrigeration plant is doing all that can be expected by just maintaining its rated capacity.

HIGH HUMIDITY NO HELP

It is seen that in a climate where the rainfall is more than five times that of New York City, and the daily temperatures exceed those of the southwestern United States, a multitude of trouble is encountered on refrigeration systems, the combination of which is found nowhere else. Even the small machines have driers on them all the time, on a by-pass line. Silica gel is the standard charge for driers, simply because it is easiest to procure. Calcium chloride is available as well, but activated alumina is very scarce.

Repairs on refrigeration units are made over here that a service mechanic would ordinarily not bother with back home. For when the replacements are not available the machine must be restored to operation anyway. This is a maxim of Army maintenance everywhere. The ingenuity of the American soldier can always be relied upon to improvise in an emergency.

Parasites to Combat Crop Pests Are Stored In Big Coolers

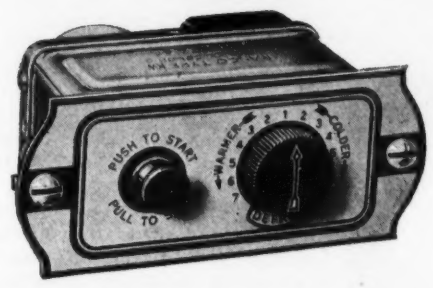
HOBOKEN, N. J.—Here's another way in which refrigeration helps in the fight for freedom—freedom from insect pests. Several refrigeration rooms at the U. S. Plant Quarantine Inspection House here are employed to keep dormant parasites used to combat destructive insects.

The parasites are kept under refrigeration until the insects make their seasonal appearance. Cooling compartments in the refrigerators can be held at 50° F. to arrest development of the parasites, and in one compartment temperatures can be reduced to 32° F.

Fresno, Calif., Men Form R.S.E.S. Chapter

Members of the refrigeration and air conditioning industry in Fresno, Calif., recently got together to organize a local chapter of the Refrigeration Service Engineers Society. Posed above are the officers of the new group (left to right): R. F. Cates, treasurer; G. C. (Doc) Armour, secretary; Charles G. Bell, president; Nat Leas, vice president. The photo was taken by R. A. Jines, an R.S.E.S. member.

Beauty is More Than Skin Deep!



It's easy to see that Ranco Refrigeration Controls are attractive instruments with their stainless steel covers and attractive design. No wonder service men are so proud to install them. But this beauty is more than skin deep.

The precision construction, careful workmanship and unique features inside the Ranco Control are most important and a thing of beauty. That is why you can rely on Ranco as a precision instrument, sturdily made, dependable and accurate in operation.

Ask Your Jobber about Ranco Controls

Ranco Inc.
COLUMBUS 1, OHIO

MARLO EVAPORATIVE CONDENSERS
SOLVE WATER SUPPLY
AND SEWERAGE PROBLEMS

Condenser water creates a serious problem for many industrial plants.

Often sewers are too small—waste water chokes them up—sewers "back up" and flood cellars—destroy valuable merchandise or equipment.

Or water supply is scant—too expensive to be wasted down the sewer.

Marlo Evaporative Condensers cut your cooling water consumption to 5%. They use it over and over again, until it evaporates—and—with no sewer problem.

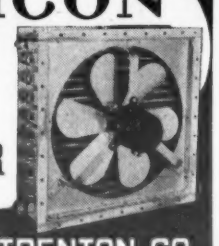
Capacity from 5 to 100 tons, for every refrigerant. May we send you our descriptive bulletin?

MARLO EVAPORATIVE CONDENSERS
Ball-Bonded Blast Coils—Cooling and Heating • Air Conditioning and Refrigeration Apparatus • Industrial Blower Units • Unit Coolers Evaporative Condensers and Coolers • Low Temperature Apparatus.

"MARLO MEANS HEAT TRANSFER EQUIPMENT"

MARLO COIL COMPANY
ST. LOUIS 10, MISSOURI

KRAMER
UNICON
Self Contained
Remote Type
Air Cooled
CONDENSER



KRAMER TRENTON CO.
TRENTON, S. N. J.

In the West it's
REFRIGERATION SERVICE INC.
Pacific Coast Supply Jobber
since 1928
Your letterhead will bring our latest catalog—also our House Organ.
"The Liquid Line"
3109 Beverly Blvd.
LOS ANGELES 4, CALIF.

Crosley Names Lindeteves Distributor For East Indies

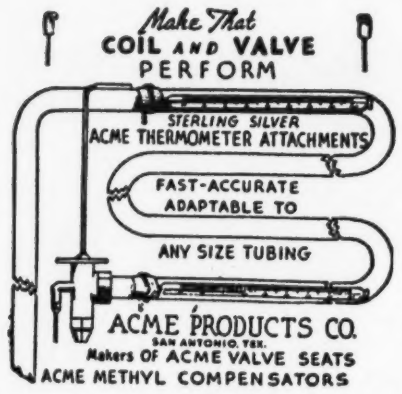
CINCINNATI—Tentative arrangements have been made between the Crosley Corp. and the firm of Lindeteves, Inc., of New York for the latter company to act as exclusive distributor for all Crosley products throughout the Netherland East Indies, it was announced by John W. DeLind, Jr., director of exports, the Crosley Corp.

Because of the present occupation of the Netherland East Indies by the Japanese, final arrangements for this distributorship will not be completed at this time, Mr. DeLind said.

The firm of Lindeteves, Inc., is the affiliated company of the parent organization Lindeteves-Stokvis which has several offices in Europe and 24 branches in the Netherland East Indies. The firm has maintained a buying office in New York since 1917 in order to take care of the requirements of the vast Lindeteves-Stokvis organization throughout the Netherlands East Indies.

Electrimatic
AUTOMATIC CONTROL
VALVES AND REGULATORS
2100 INDIANA AVENUE • CHICAGO 16, ILL.

NEW



PATENT PENDING

TOP PERFORMANCE
DEMANDS
Correct Super Heat Settings.
Your Thermometer will Prove It.
(That FROST LINE may be OIL)

AVAILABLE NOW
SEE YOUR JOBBER

Off the Chest

CAPTAIN SEEKS CLIENTS

E. L. Burke & Co.
122 East Seventh St.
Los Angeles, Calif.

Sirs:

After three years of service as a Captain in the Army of the United States in this war, supervising the allocation and distribution of critical aircraft materials running into millions of dollars, my problem now is to re-enter the civilian field of endeavor most qualified by my experience and ability.

For 20 years prior to the war I successfully represented manufacturers in the merchandising and distribution of their products through the most productive channels. One client alone paid me in excess of $100,000 over a 10-year period on a commission basis.

It will be greatly appreciated if you will bring to the attention of reputable manufacturers the availability of my services, or furnish the names of likely clients so that solicitation can be made direct.

E. L. BURKE

AN IDEA FOR GERMANY

Connecticut Ice Machine Co., Inc.
7 Madison St.
South Norwalk, Conn.

Editor:

Here is an idea that could be worked into a perfect scheme of retribution against our enemies. Since we are, and will probably continue to be the biggest sucker nation ever known, it is very doubtful that anything could ever come of such an idea. However, I would like to hear a few arguments against it.

In a few words, here it is: When Germany is defeated, why not let them continue to pour out the arms and ammunition required to defeat Japan. Think what that would mean. Poetic justice in its purest form. A nation that dedicated itself to production for war, compelled to continue in order to defeat and ruin its partner in crime. A chance for the Allies to start reconversion; billions of dollars saved for us from the sink hole of war; possibility of saving our own free enterprise democracy from the totalitarianism to which it is surely headed, as long as the war continues; Germany prevented from stealing another march on the Allied world by converting to peace, while we have to keep fighting.

No matter how you look at it, it's perfect.

Apparently, however, the plan of our master minds is to immediately destroy Germany's arms production, while we are told we need countless more billions to build new factories for war.

In the meantime, Germany is converted to peacetime industry, under our supervision, and most likely at our expense, while we continue the bankrupt trail we have followed for the past 13 years.

When Japan folds up will be the time to destroy the war-making capacity of both partners in crime. In the meantime, we could provide a subsistence level of living for the Germans, while they could produce the war material. We reconvert and regain our markets, while using their tiger tanks and 88MM guns, which, we are told, are so superior, against the Japs. Think what a wailing and gnashing of teeth there would be.

It's too much to hope for from our Santa Claus. Maybe Mr. Churchill would be interested?

Your comments would most certainly be appreciated.

JOHN L. IRVING,
President

'I LIKE YOUR SIDE'

The Downes-Smith Co.
Greenwich, Conn.

Editor:

I have just finished reading Mr. Nelson's letter to you. He seems more one sided in his opinion than he accuses you of being. Personally I have always enjoyed your column, but then maybe I'm "stupidly bigoted," too.

I've always felt that capitalism in this country created more opportunities for initiative and advancement for the individual than existed anywhere else in the world.

How far should our war production have gone and at what expense if it had been left in the hands of those who oppose it? Sure, there are two sides to every question, but Mr. Nelson doesn't seem to think so.

I like your side better; keep up the good work.

MALCOLM MEYER

In New G-E Post

H. A. WARREN

Has been named manager of the newly formed Central District established by General Electric Co.'s appliance and merchandise department. Headquarters are in Kansas City, Mo.

CORRECTION

Gray & Rogers, advertising agency for the Sunroc Refrigeration Co., apologizes to the readers of AIR CONDITIONING & REFRIGERATION NEWS for the misstatement of fact they made in the February and March advertisements for Sunroc. Where the advertisements read, "Since October 1936, Sunroc has been the sole contractor for all types and sizes of water coolers bought by the United States Government from the General Schedule of Supplies," they should have read, "for all types and sizes of electric water coolers."

Sweet Dreams

That will COME TRUE
FOR FARM FAMILIES
EVERYWHERE

BEN-HUR
FARM AND HOME
FREEZERS

FORWARD-LOOKING families are planning post-war budgets that will include a Ben-Hur Farm & Home Freezer for freezing and storing all types of food products. The whole family looks forward to the pleasure of enjoying home-grown vegetables, fruits, meat and poultry months after they have been frozen and stored . . . besides banking substantial savings in food, and avoiding unnecessary shopping trips.

YOU can make these post-war dreams come true for your customers — and cash in on a tremendous future market — by featuring the BEN-HUR Farm & Home Freezer when production is permitted.

GET ON OUR LIST for full information and sales facts — to be sent you as soon as this data becomes available.

War Bonds **NOW**
will bring V-Day Sooner!

BEN-HUR MANUFACTURING CO.
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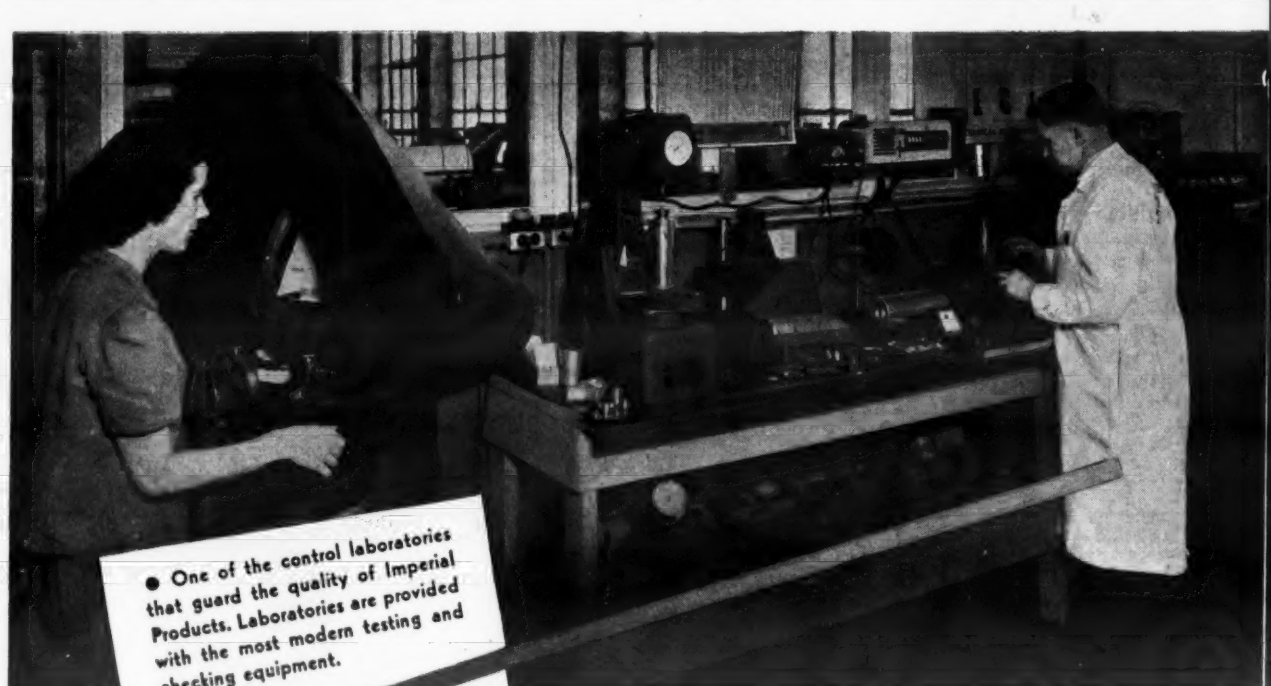
BEN-HUR FARM & HOME FREEZERS



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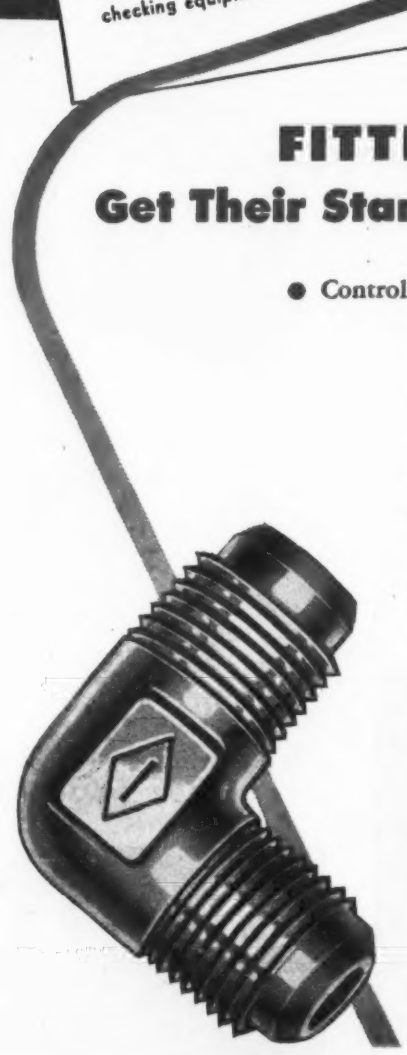

• Control of quality by Imperial reaches out into every step in the manufacture of fittings . . . resulting in fittings that are correctly engineered, accurately machined and have extra strength for refrigeration service.

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In machining . . . where laboratory control of tools and gages is vitally important . . . threads and seats of fittings come under closest scrutiny. Should there be any doubt about a fitting, an image 20 times actual size is thrown on the screen of an optical projection machine. Here the lead, pitch and angle of threads can be checked with greatest accuracy.

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Here's a Job For Dealers--War Brides Have Lot To Learn on Food Handling

'Worries' About Veterans' Eating Habits Voiced

NEWARK, N. J.—A home cookery course for war brides, sponsored by the Public Service Electric & Gas Co. of New Jersey, has been introduced to instruct the millions of new brides and brides-to-be in the culinary arts.

In announcing the course, Henry Steinmetz, vice president in charge of sales of the Public Service Co., pointed out that reconverting our returning servicemen from K-rations to home cooking is one of the major problems facing millions of brides who have had no opportunity to set up housekeeping.

Odd salads, chiffon pies, and canned foods which have made up most of the cooking experience of these brides, will not satisfy the GI's craving for thick steaks and onions, fried potatoes, biscuits, and apple pie. With the proper recipes and the automatic features on new ranges, the reconversion of GI Joe to home cooking will be relatively simple for any bride, Mr. Steinmetz stated.

The *New York Herald Tribune* commenting editorially on GI Joe's reconversion to home cooking said:

"One aspect of the much-discussed period of demobilization has received little attention. It is the question of the reconversion of GI's from K-rations to home cooking. On first consideration of this domestic phase of internal economy, the reconverting would appear to be as easy as a thick steak and onions, fried potatoes, saleratus biscuits, and a double size piece of homemade apple pie. But there are various catches to be encountered in this tasty simplifying, and out in Chicago the American Dietetic Association is taking up the whole matter in a serious way.

"Members of the association are warning wives that in the reconversion of diet they must be prepared to set before returning husbands good foods, well cooked. Wives experienced only in meat loaves, odd salads, chiffon pies and attractively labeled tins, are urged to take a course in nutrition (or cooking).

"As a simple food of substantial qualities, stew was sensibly mentioned by one dietetic authority, who said that husbands could be persuaded to eat this humble dish by giving it a tricky name, such as boeuf en daube or banquette de veau. Husbands, it was asserted, often choose their food in this dumbly linguistic manner when dining out—being attracted by elaborate nomenclature of hotel or restaurant menus.

"But with this doctrine we must differ. Any hungry man, we believe, will devour a good stew with relish. He will not eat it a bit better or sooner by calling it what you will, if it is a mere daub of beef or a shoulder of veal cooked to taste like a blanket.

"The last thing any returning Happy Warrior will want is to be fed on fancy names. Pork chops, rib roasts, even beef goulash and Irish stew—those he knows. Let any wifely amateur of diet give them to him in well cooked sufficient quantities and the inner problem of demobilization will be heartily solved."

Levitt Bros. Buy Bldg. To Expand Appliances

VANDERGRIFT, Pa. — Planning increased promotion of electrical appliances after the war, Levitt Bros. here has purchased a storeroom adjoining the present building to permit expansion of the appliance department.

Enlarged department will permit model kitchen displays for cooking schools and demonstrations. After remodeling the store will have 65 feet of window display, about three times the average, and a single entrance will be provided to insure customer traffic through the appliance section.

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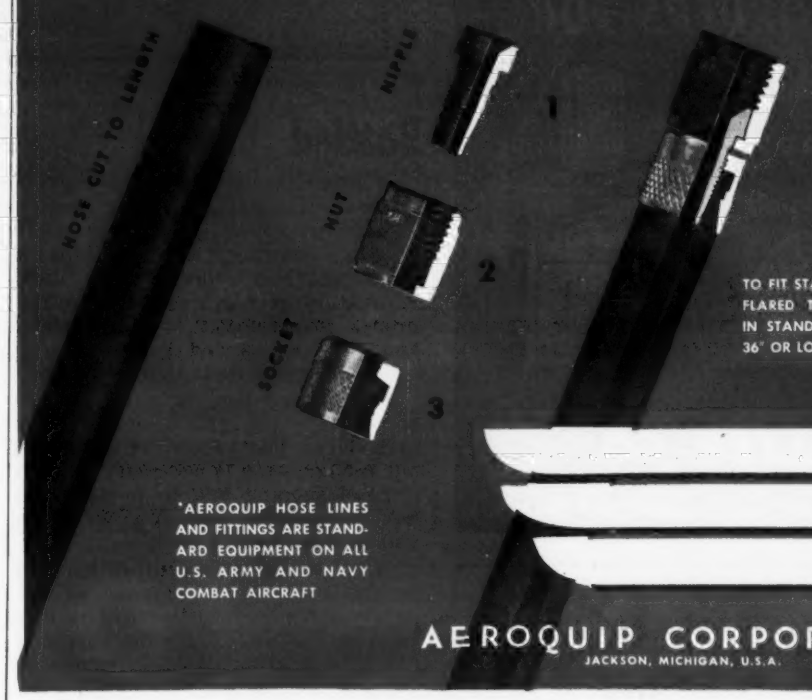

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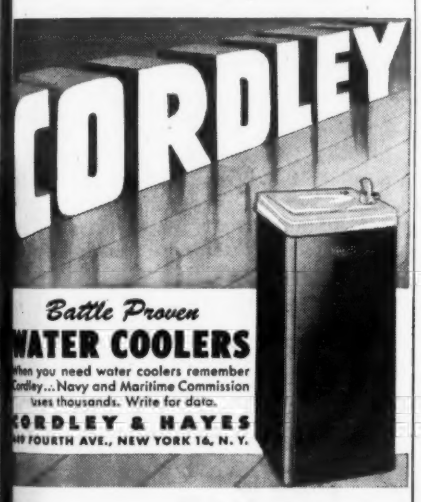
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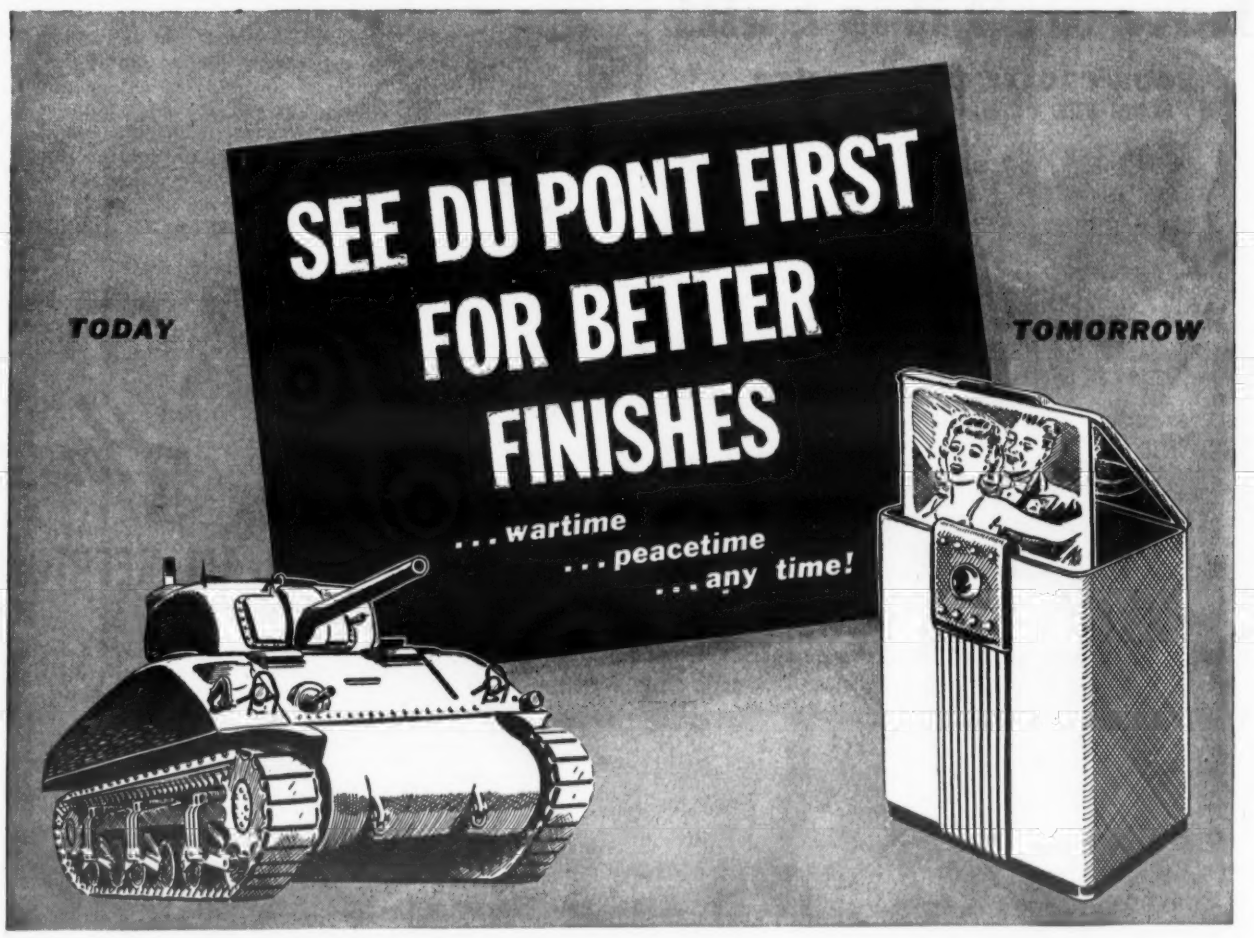

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Du Pont war service is at *your* service. Since Pearl Harbor, Du Pont finish engineers (skilled experts) and the Du Pont Research Laboratories have helped hundreds of war industries break bottlenecks, and step up production. Call on these Du Pont "trouble-shooters" whenever you need them. Or if your finishing problem concerns the future and your product-to-be, they'll be glad to help you out on that one, too—provided it does not interfere with the war effort. If you're planning your product now, then *now* is the time to start thinking about the finish!

E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Delaware.

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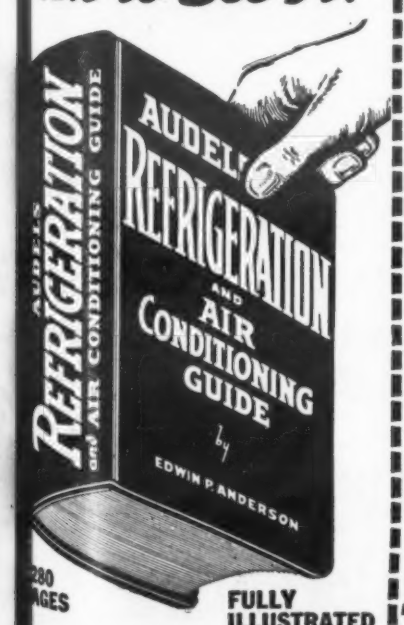

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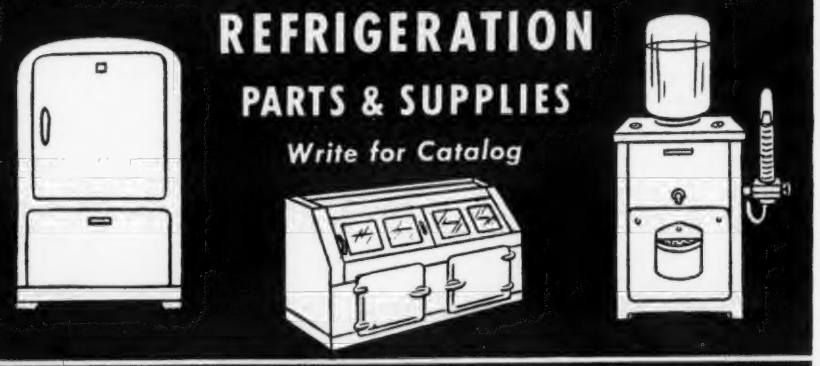

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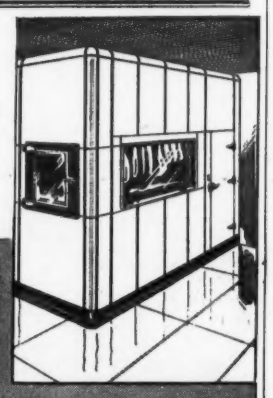

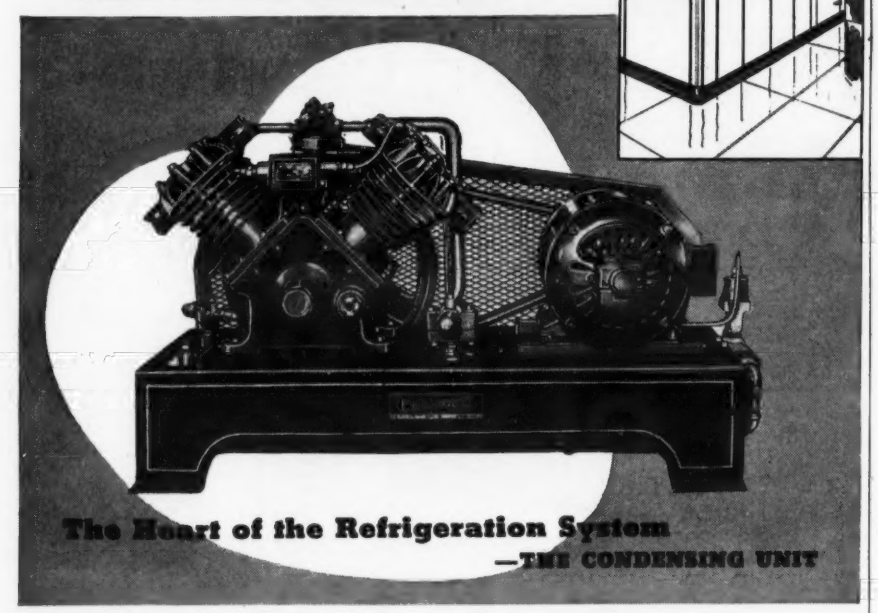

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Army Refrigeration Problems

By P. B. Reed

Manager, Refrigeration and Air Conditioning Division, Perfex Corp.

Bottled Beer

Most carbonated bottled drinks consist of water, sugar, and some flavoring extract, with perhaps a fruit juice and a preservative. Refrigeration is not necessary to the proper preservation of such drinks and they are chilled before serving simply to make them more palatable.

This is not true of beer, neither bottled nor draught beer. Beer is carbonated, just as are the soda pops but refrigeration is necessary to keep it from spoiling and to preserve its flavor; also to maintain proper control of the foam.

Bottled beer is sometimes handled in about the same manner as the usual carbonated bottled drinks but, especially in warm climates, this may result in a great deal of damage to the beer, to its appearance, flavor, and reaction on the human system.

It must be handled in a manner comparable to the handling of milk for, like milk, it may spoil and be unfit for consumption if not properly handled, stored, refrigerated, or served. In some respects it requires more care than milk for beer is affected by light and a proper pressure must be kept on it.

The handling, storage, tapping, and serving of draught beer is a long story, a science and an art in itself and must not be attempted by novices. Even bottled beer presents many problems especially when transported long distances and through hot or freezing climates, and it is not to be wondered that the quality of the beer served to the Army and Navy on foreign duty has sometimes been very low.

WARTIME EFFECTS ON BEER

It has been difficult for the brewers to keep up the quality of their beer. Like others, they have been short of skilled help and proper ingredients, especially hops. Materials for bottle caps have been short and there has been a very high percentage of leaky caps, which has allowed the carbonic acid gas (carbon dioxide—CO_2) to leak out and leave the beer "flat."

PASTEURIZATION

Milk and beer are alike in another way. "Raw" milk is unpasteurized and must be very carefully handled and cannot be kept sweet as long as pasteurized milk; but even pasteurized milk must be kept under refrigeration and cannot be kept indefinitely. Draught beer is "raw" beer; it has not been pasteurized and must therefore be more carefully handled than bottled beer, for practically all bottled beer is pasteurized.

Nevertheless, bottled beer cannot be kept indefinitely and refrigeration is essential to its proper preservation over long periods especially in hot climates.

For short-time storage, refrigeration is not necessary for bottled beer but it must not be kept in a warm place and must **never** be allowed to stay out in the sun. For a storage of several weeks, it should be kept in a cool place preferably 50° F. or below.

EFFECT OF LIGHT ON BEER

Beer has one peculiarity. It is affected by light and must never be exposed to the light, for more than a few minutes. It should be kept in a dark place. Light spoils beer, gives it an odd taste, and the beer becomes cloudy and a sediment forms in it. As soon as bottled beer is received, it should be unloaded and put in a storage that is not only cool but also dark, not necessarily pitch dark but at least not exposed to sunlight, either direct or reflected.

ROTATION OF STOCK

The stock of bottled beer should be "rotated"; that is, the oldest should be served first and the last shipment kept for last serving. Stack the cases and place the bottles in the cooler so that the oldest will be reached first.

COOLING RATE

Allow plenty of time for cooling the beer. "Wet" bottle coolers in which the bottles are in cold water, cool the fastest. In this type, the beer may be cooled in upwards of an hour depending on how warm the incoming beer is, how cold the water is, and how much beer is put in in comparison to the capacity of the cooler. Dry coolers are much slower and may take from three to eight hours to cool the beer depending on whether the air circulation is by natural gravity or by a fan and what its velocity is.

Speed of cooling also depends on how the bottles are packed in the cooler and how the air can circulate around the bottles. Also it depends on the temperature of the incoming beer, the temperature of the cooler, and the quantity of warm beer in relation to the refrigerating capacity of the cooler. (See the first article of this series, appearing in the Aug. 2, 1943, issue.)

38° STORAGE

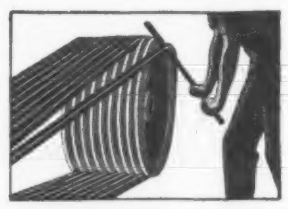
Beer should be kept at as near 38° F. as possible so that when served it will be about 40° in the glass. There is a variation in individual tastes and generally speaking, colder beer is demanded in hotter climates, but beer below 38° does not

(Concluded on Page 27, Column 1)

How to Lengthen V-Belt Life—

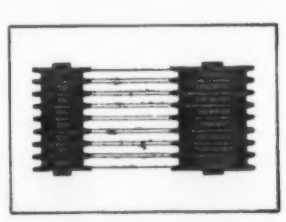
ON ALL REFRIGERATION AND AIR-CONDITIONING SYSTEMS

You never need to "baby" your tough, firm-gripping Dayton V-Belts, but if you will give them just reasonable care you can add months and years to their remarkably long lives. With the vast increase in the use of Dayton V-Belt Drives for compressors and fans in commercial, industrial and military service, proper maintenance becomes more than ever a patriotic duty. Here are 9 helpful hints:

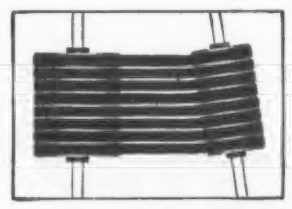


1. When installing, don't pry V-Belts over pulley grooves—instead, slide motor forward and drop belts over the pulleys. Then move motor back until the proper tension is obtained.

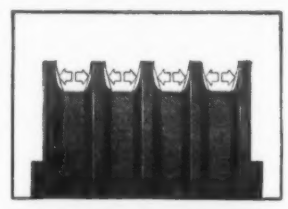
2. When the proper tension is reached, belts have "live springy vibration." When too much slack exists, belts feel dead when struck by hand.



3. Check and line up pulleys, groove for groove, and in parallel. Misalignment wears both belts and pulley grooves excessively.



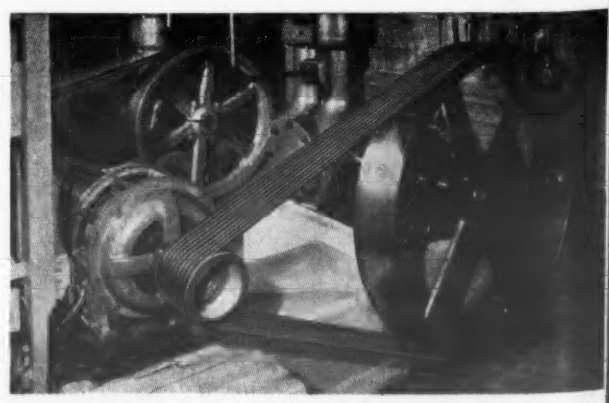
4. Check both shafts for parallel alignment so each belt can pull its share of the load.



5. Check and replace worn pulleys—they wear out belts prematurely.

6. Don't replace a *part* of a set of V-Belts with new belts as the new belts will hog the load and wear out quickly. Instead, *replace the whole set* and conserve any good belts from the old set for spares.

7. Don't let oil leak on V-Belts. Where an oily condition prevails, use the Dayton Oil-proof V-Belt.



8. Don't hang V-Belts on nails, hooks or across boards or other objects which might cause them to bend sharply.

9. Belts not in use should be stored in a cool, dry place away from direct sunlight and high temperatures.

You are invited to call on your nearest Dayton Distributor for helpful suggestions or service. He will gladly help you with your V-Belt problems.

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V-Belts by Dayton Rubber

WRITE FOR FREE WALL CHART

The Mark of Technical Excellence in Synthetic Rubber

Clean Glasses Vital For Good Beer

(Concluded from Page 26, Column 5)

give out it's full flavor and appears flat because it does not have as much foam. Beer much above 40° is apt to be "wild"—too much foam, and to lack zest due to excessive loss of CO_2

CLEAN GLASSES

The glasses should be kept in a cold place, for if they are warm and especially if they are thick and hold a lot of heat, the beer will be warmed by the glass.

It is not generally recognized that the cleanliness of the glass has such an important bearing on the "collar." A glass that has even a little grease on it will kill the foam and the beer will appear flat and unappetizing.

Immediately after they are used, the glasses should be rinsed in clean water to remove the old beer and dried foam. The glass should then be washed with a cloth or brush in a solution containing a cleaner (½ oz. of tri-sodium phosphate per gallon of water, or one of the commercial cleaners) and finally again rinsed in clear, clean water and allowed to drain dry in an inverted position.

There can be enough grease film on a freshly laundered towel to kill the collar of a glass of beer. A glass is not necessarily clean nor free of grease just because it looks clean and has been polished.

To test whether there is grease on a glass, dip it in clear, clean water. If upon removal from the water the water film is streaked, it shows that there is grease on the glass that keeps the water from sticking. To further test it, shake salt into the wet glass. The salt will stick on the clean portion where there is water but will leave an open, unsalted spot where there is grease but no water.

The inside of the glass should be wet when pouring beer into it, so it is well to rinse the glass out with clean water before pouring in the beer. A dry glass tends to break up the head or collar of foam.

BEER IS PERISHABLE

Beer is a perishable and easily contaminated beverage and although bottled beer is better protected by the bottle and by being pasteurized than draught beer, nevertheless it requires care and some knowledge in its storage, handling, and serving.

Buffalo Forge Net Falls Below 1943

BUFFALO—The Buffalo Forge Co. and subsidiaries reported net profit for the year ended Nov. 30 of $698,669, equal to approximately $2.12 a share, compared with $1,224,558, or approximately $3.77 a share, in the year ended Nov. 30, 1943.

Net sales in the latest 12-month period amounted to $28,294,401 contrasted to $24,796,795 in the previous year. The estimated provision for taxes on income in the year ended Nov. 30 was $2,335,278 against $2,724,566 in the preceding year.

Baker Ice Machine Moves New York City Office

NEW YORK CITY — Baker Ice Machine Co., Inc., has moved its New York office to the Engineering Bldg. at 114 Liberty St., New York 6, the company announces.

Material Delays Force WPB to Re-assign Ice Box Quotas

WASHINGTON, D. C. — Domestic ice refrigerator production quotas previously assigned to four manufacturers for the first quarter of 1945 have been reduced by a total of 5,450 units, and the quotas assigned to nine other manufacturers have been increased correspondingly in Schedule X to Limitation Order L-7-c.

Principally because of delays in the delivery of material, three of the four manufacturers whose quotas have been reduced are able to meet their previous quotas only in part, and one is unable to make any ice refrigerators at all during the first quarter.

The manufacturers whose quotas have been cut, their previous quotas, and their present quotas are:

	Previous Quotas	Present Quotas
Ice Cooling Appliance Corp., Morrison, Ill.	16,171	14,171
Maine Mfg. Co., Nashua, N. H.	9,900	8,700
Stoddard Mfg. Co., Mason City, Iowa	750	500
Success Mfg. Co., Gloucester, Mass.	2,000	.....

The manufacturers whose quotas have been increased, their previous quotas, and their present quotas are:

	Previous Quotas	Present Quotas
Atkins Table & Cabinet Co., Brooklyn	1,649	1,949
Brunswick Refrigerator Co., Brooklyn	3,221	3,421
Craftbilt Cabinets, Burbank, Calif.	2,000	2,500
Doherty-Stirling, Inc., Baton Rouge, La.	402	502
Fy-Boro Metal Products Co., Brooklyn	6,000	6,500
Iceland Refrigerator Co., Brooklyn	2,951	3,701
Modern Refrigerator Works, Glendale, Calif.	1,500	2,000
Precision Metal Products Co., Brooklyn	1,875	2,475
Sanitary Refrigerator Co., Fond du Lac, Wis.	6,000	8,000

First-quarter production quotas previously assigned to five other ice refrigerator manufacturers are unchanged in the amended schedule. They are:

	Previous Quotas
American Fixture & Mfg. Co., St. Louis	2,000
Arctic Refrigerator Co., Brooklyn	4,964
Dratch's Victory Refrigerator Box, Brooklyn	2,279
King Refrigerator Corp., Brooklyn	3,838
Ward Refrigerator & Mfg. Co., Los Angeles	7,500

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New York 3, N. Y.

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ANY SIZE
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Manufacturers know that maintenance of adequate local stocks is indispensable in the refrigeration parts and supplies field. NRSJA member firms carry the biggest inventories, the most complete lines. They operate in all parts of the nation, and in all of the leading trading centers. To the manufacturers they represent, and to the firms they sell, NRSJA firms offer true one-stop supply service.

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ELECTRIC MOTORS FOR INDUSTRY SINCE 1915
HOWELL ELECTRIC MOTORS COMPANY · HOWELL, MICH. · REPRESENTATIVES IN ALL PRINCIPAL CITIES

Superior QUALITY FITTINGS
. . . designed especially for use in refrigerating systems where they must withstand wide fluctuations in temperature, plus considerable vibration. Machined from brass forgings and relief-annealed extruded brass rod to assure uniform density —maximum strength—freedom from season cracking—total absence of seepage leaks.
All threads machined to medium fit (SAE Class 3). Flare threads and faces protected by cardboard ferrules.
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Jap Airplane Parts In Window Stop 'Em For Service Shop

FRESNO, Calif. — The carburetor and other engine parts from a downed Jap Zero pursuit plane are on display in the window of Friendly Foss Appliance Co. here, and attracting a heavy number of visitors.

The Foss shop, specializing during wartime on radio and appliance repairs and maintenance, received the enemy airplane parts from a former employe who tore them off a shot-down plane in a Southern Pacific battle.

H. F. Foss, head of the shop, pointed up the interest of the display with a sign which indicates the workmanship on the carburetor as compared to American craftsmanship.

"Note Rough Construction" the sign reads. Taking up various features of the carburetor it points out poorly machined threads, uneven surfaces which require three or four gaskets to seal, and roughly shaped nuts on the ends of bolts through the housing.

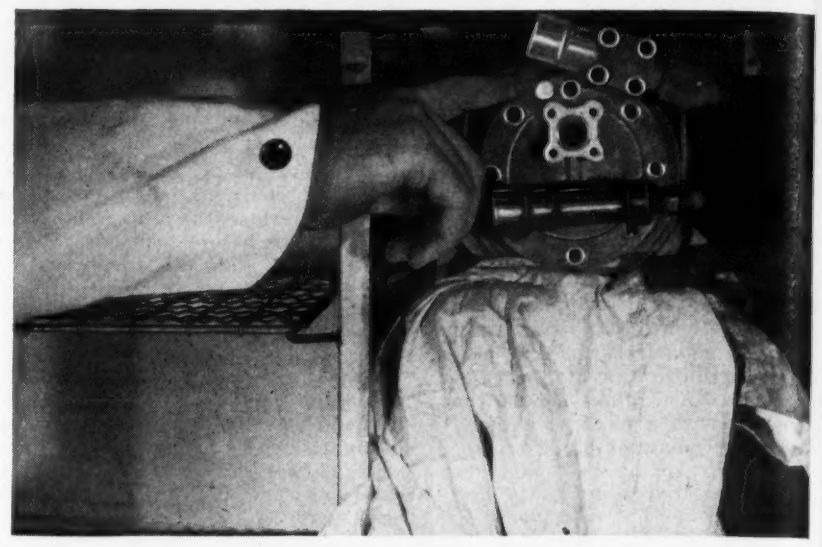
The compressor unit from a modern U. S. refrigerator was displayed alongside of the carburetor to indicate the difference in American machine construction.

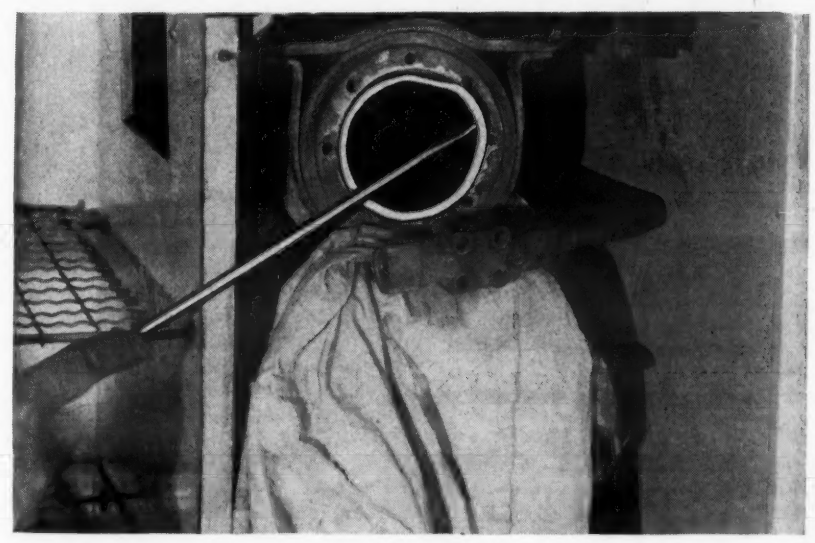
"A display of this kind isn't designed to bring in customers for service," Mr. Foss grinned, "but we've found this simple display, with the comparison of metal working proficiency, has stopped more passersby than anything we have ever placed in the window."

Servicing Frigidaire Open-Type Systems

Instalment No. 6

22—Changing Float Valves—Third Step





Disconnect suction line valve and push off header by running one of the removed suction valve bolts into the specially provided "push off" hole, as shown.

Then *remove old gasket and replace with new one.* It is now time to install the new float, but first here is a special note of caution. Always be sure to remove the clip from the new float valve.

23—Changing Float Valves—Fourth Step

Be sure to remove the clip from the new float valve. This clip is installed at the factory or shop and prevents damage to the float needle by holding the needle away from the seat. It is easy to imagine the result of failure to remove this clip.

One of the largest exclusive refrigeration stocks in America

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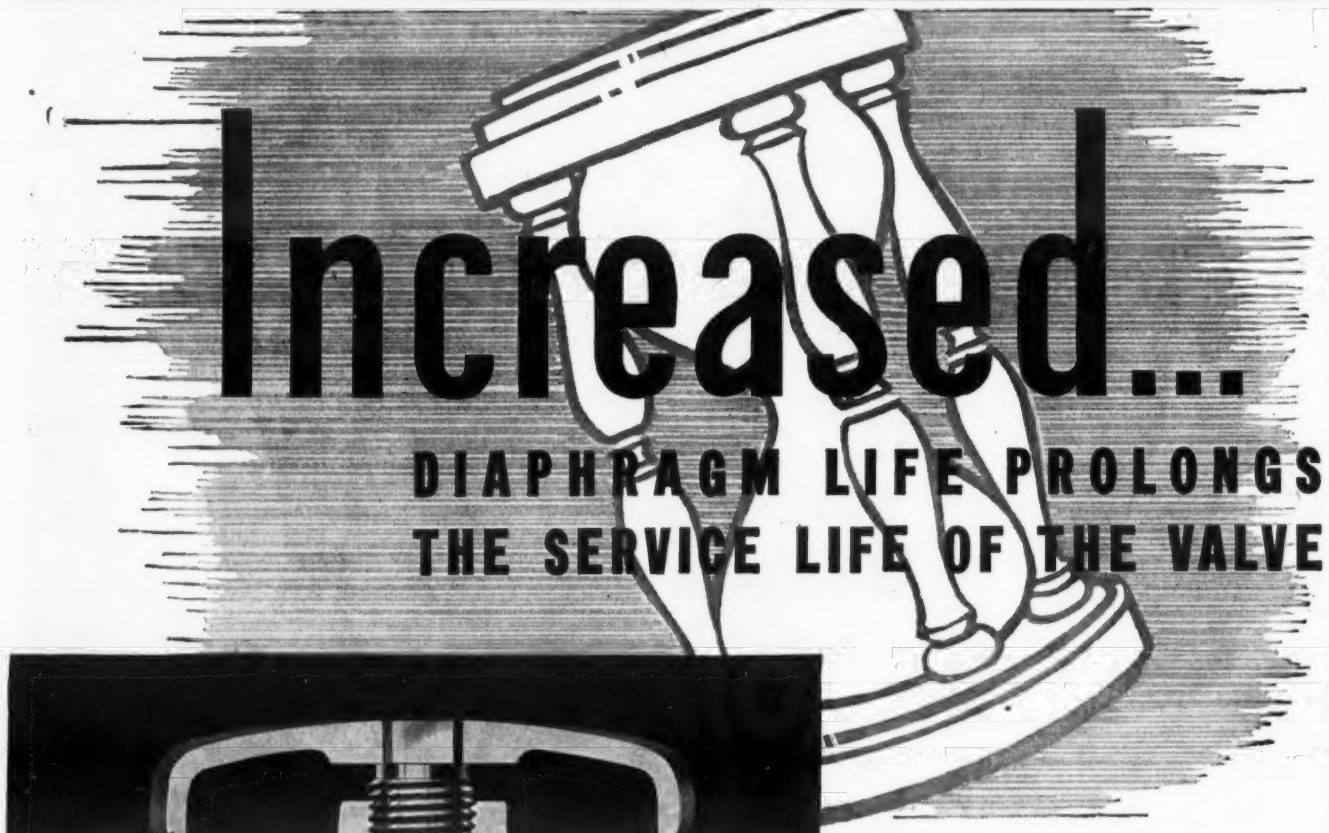
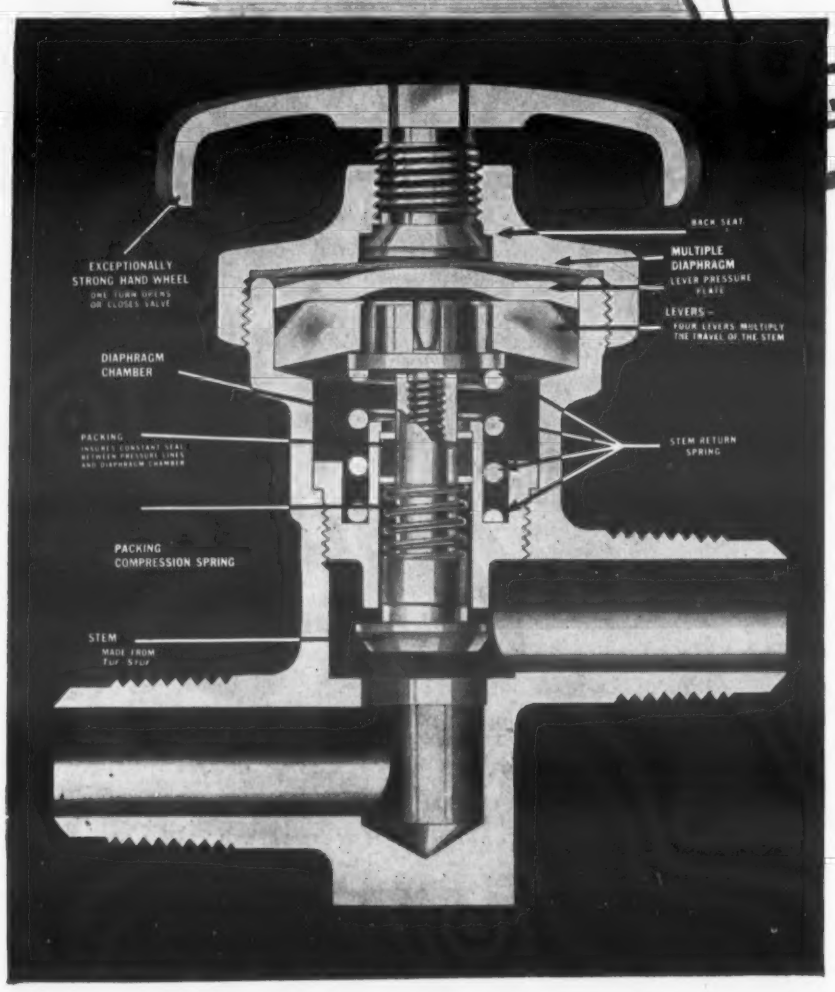
NEWARK 3, N. J. - Mitchell 2-5346





Because of the small amount of movement, the multiple diaphragm in our TRIPL-SEAL Valve is never deflected past its normal center; thus immeasurably prolonging both its life and the life of the valve in service.

The multiple diaphragm has approximately 20% increased surface area over more conventional types of diaphragms. A single turn only is necessary to open or close the TRIPL-SEAL Valve.

TRIPL-SEAL

Positive sealing at three essential points in the valve is adequately provided for—a back seat with valve in open position,—the multiple diaphragms,—and a packing around the stem. (This packing insures constant seal between pressure lines and diaphragm chamber.)

The stem of the TRIPL-SEAL Valve is provided with a sixty degree bevel, thus procuring the most desirable wedging action for positive and easy closing. It is manufactured from Tuf-Stuf, a strong, corrosion-resistant alloy.

The stem does not rotate, and is constantly guided into the same position against the seat by a cylindrical guide, so processed as to eliminate any possibility of distortion.

The body and cap of the valve are forged brass to eliminate seepage and to withstand frost action; mounting lugs are forged integrally with the body to provide the ultimate in mounting strength.

The hand-wheel is exceptionally strong, and is so designed that it provides a convenient grip for manual operation.

Valves are furnished in two-way, three-way, and angle type—flared or solder type ends—and in complete range of all necessary sizes.

Order through your jobber.

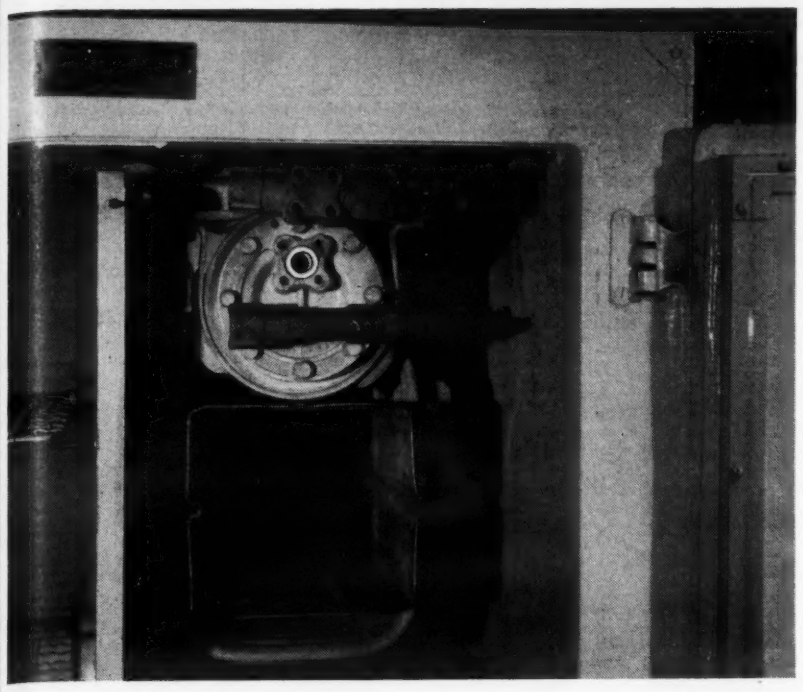
MUELLER BRASS CO.

PORT HURON, MICHIGAN

ORDER THROUGH YOUR JOBBER... ONE SOURCE OF SUPPLY... SAVES YOU TIME AND MONEY

Servicing Frigidaire Systems

24—Changing Float Valves—Fifth Step

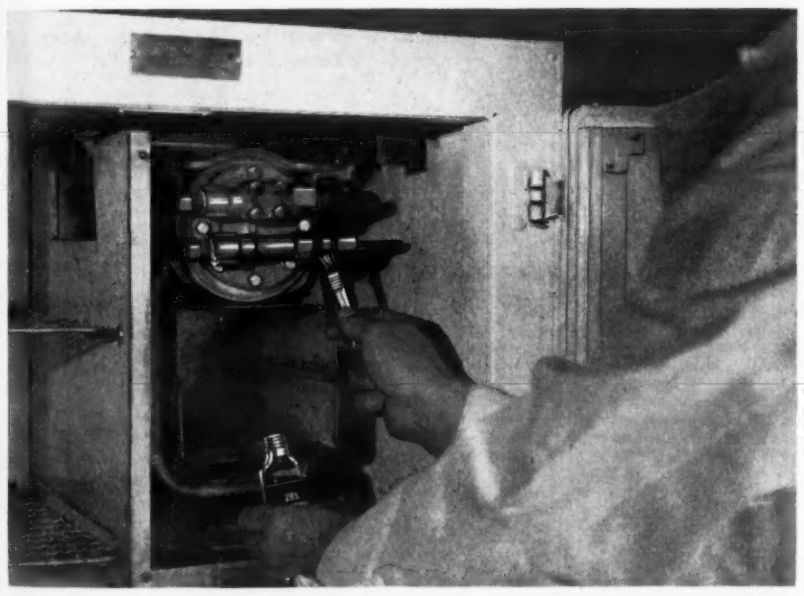


Install header and replace suction valve over new gasket. Then tighten bolts securely.

When replacing these bolts, be sure to tighten them alternately, so as to get a perfectly fitting seal all around. If the replacement float is not equipped with a liquid line valve, the valve should be removed from the old header and reinstalled on the new one. In this case, Frigidaire thread compound should be used on the threaded joint to assure a leak-proof seal.

Since oil is no longer a problem, service men can now leave the front of the cabinet down or replace the back of the freezer, as the case may be.

25—Changing Float Valves—Final Step



The final step in changing the float valve is to purge air at both the freezer and compressor body.

The liquid line is purged by opening the liquid line valve at the receiver and cracking the flare nut of the freezer liquid valve. To purge the suction line, both liquid and suction line valves on the freezer are opened and the suction line flare nut at the compressor is cracked.

In order to determine when air has been purged from the lines, hold ammonia swab or Halide Leak Detector—according to the refrigerant used—at the valves in question. As soon as the air in each case has been exhausted, the presence of refrigerant will be indicated by the reaction of the leak detector. When the air has been thus removed, tighten all connections, test for leaks, and the unit is ready to operate.

WHEN PEACE COMES

KOCH

WILL AGAIN PRODUCE COMMERCIAL REFRIGERATOR EQUIPMENT FOR CIVILIAN USE

NOW SOME SELF-CONTAINED REACH-IN REFRIGERATORS ARE AVAILABLE FOR THOSE WHO CAN QUALIFY . . . . . .

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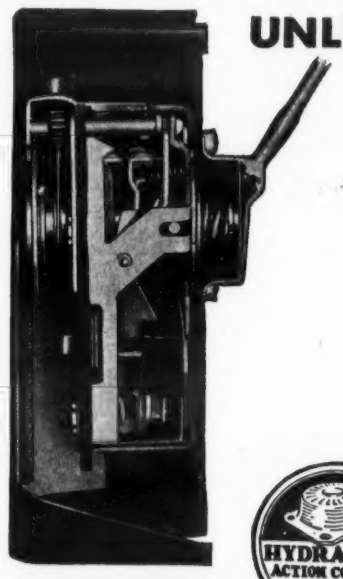
possible because of

UNLIMITED POWER OF HYDRAULIC-ACTION



With the terrific power of Hydraulic-Action to actuate the control, tough, strong, hard-driving parts can be built into White-Rodgers temperature controls.

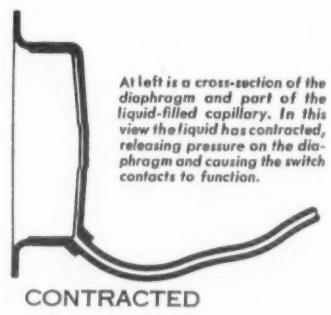
That means a control with long life, free from trouble calls due to breakage or adjustment needs. Under even the hardest, roughest use, White-Rodgers Hydraulic-Action controls can take it and come back for more.

HYDRAULIC ACTION CONTROL

8 EXCLUSIVE FEATURES OF WHITE-RODGERS HYDRAULIC-ACTION TEMPERATURE CONTROLS

1. May be mounted at any angle or position, above, below or on level with control point.
2. Hydraulic-Action principle incorporating solid-liquid-filled bulb and capillary provides expansion force comparable to that of a metal bar.
3. Diaphragm motion uniform per degree of temperature change.
4. Power of solid-liquid charge permits unusually sturdy switch construction resulting in positive contact closure.
★ 5. Heavier, longer-wearing parts are possible because of unlimited power.
6. Dials are evenly and accurately calibrated over their entire range because of straight-line expansion.
7. Controls with remote bulb and capillary are not sensitive to change in room temperature. Accuracy of control is not affected by temperature changes in surrounding area.
8. Not affected by atmospheric pressure. Works accurately at sea level or in the stratosphere without compensation or adjustment.

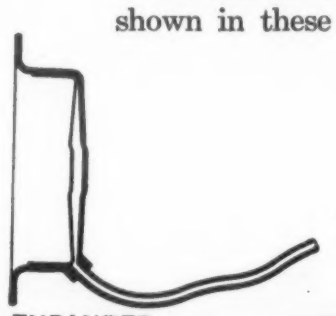
WHY HYDRAULIC-ACTION CONTROLS ARE LONGER-WEARING UNDER HARDEST USE



At left is a cross-section of the diaphragm and part of the liquid-filled capillary. In this view the liquid has contracted, releasing pressure on the diaphragm and causing the switch contacts to function.

CONTRACTED

The amazing expansive and contracting force of the Hydraulic-Action solid-liquid charge is responsible for its long-wearing dependability in service. How this works is shown in these illustrations.



In this cross-sectional view, the liquid charge of the capillary has expanded with a rise in temperature. The positive force of this hydraulic action forces the diaphragm outward and causes the switch contacts to function.

EXPANDED

Actual-size illustration of the White-Rodgers diaphragm body, the actuating element of every White-Rodgers temperature control. It is so designed as to exert full pressure at the point of contact with the switch mechanism.

WHITE-RODGERS ELECTRIC CO.

1211C CASS AVENUE ST. LOUIS 6, MISSOURI

Controls for Refrigeration • Heating • Air-Conditioning

A NATIONAL AUTHORITY on cooling procedure stated, "APRIL SHOWERS produces the greatest amount of cooling for the least expenditure."

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SCIENTIFICALLY CONTROLLED ROOF COOLING

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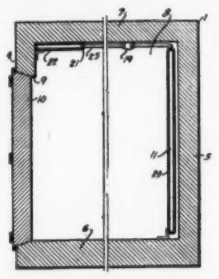
Lynch MANUFACTURING CORPORATION
DEFIANCE, OHIO, U. S. A.

PATENTS

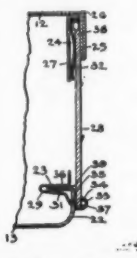
Weeks of Feb. 20 & 27

2,370,267. REFRIGERATING APPARATUS. Raymond H. Starr, Kansas City, Mo. Application June 6, 1941, Serial No. 396,841. 2 Claims. (Cl. 62—116.)



1. In a refrigerator having a storage compartment and a door admitting access to said storage compartment, a pair of cooling units having surfaces exposed to air in the compartment, one of said units being located in said compartment within ready access through the door opening without removal of contents from the storage compartment, and means for supplying a refrigerating medium to said units under such conditions as to maintain the unit that is located within said ready access through the door opening at a lower temperature below freezing than the other unit, said cooler unit having a substantially flat surface area of such size that when free of frost and moisture it will effect condensation and freezing thereon of the moisture contained within the air inside said storage compartment substantially without such condensation and freezing of the moisture occurring upon the warmer unit.

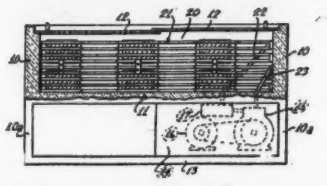
2,370,446. REFRIGERATION APPARATUS. Royal S. Buchanan, Mansfield, Ohio, assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., a corporation of Pennsylvania. Application Sept. 1, 1942, Serial No. 456,844. 6 Claims. (Cl. 220—9.)



1. In a refrigerator cabinet having walls comprising inner and outer spaced-apart shells, one of said walls having an access opening, said inner and outer shells terminating in spaced-apart edges at said access opening, the edge of one of said shells comprising a portion extending towards the edge of the other shell, a flange at the edge of said portion and extending rearwardly at an angle thereto, and a heat breaker strip extending between said shells at the access opening to close the space therebetween, the combination with said cabinet of a strip having a flat portion and a groove, said flat portion lying adacent said flange, spring means secured to said cabinet and comprising a portion bearing against the flat portion to hold the same in frictional engagement between said spring portion and said flange, said flange and spring portion being so shaped that the flat portion of the strip may be inserted therebetween by moving said strip in the general direction in which said flange extends without moving said spring portion by means other than said flat portion of the strip, said groove of the strip engaging one side edge of the breaker strip, and resilient means associated with said other shell for biasing said breaker strip into said groove.

REISSUE

22,607. CONSTRUCTION OF COOLING UNITS. Louis Weiss, St. Louis, Mo., assignor to Floyd L. Robinson, Fort Smith, Ark. Original No. 2,323,264, dated June 29, 1943, Serial No. 367,318, Nov. 27, 1940. Application for reissue June 26, 1944, Serial No. 542,081. 11 Claims. (Cl. 62—89.)



1. In combination with an elongate open top beverage cooling cabinet, a cooling unit within the cabinet, means for circulating a cooling medium through the unit, the unit consisting of a plurality of lengths of tubing, and bridge elements maintaining said lengths of tubing in spaced parallel relation, the lengths of tubing being formed to present top-open cells of substantially rectangular form, the length of each cell being substantially the width of the cooling chamber of the cabinet, said cells being spaced from each other a distance substantially equal to the width of the cells, the lengths of tubing between the cells constituting partitions arranged one between other adjacent cells, and forming with the walls of the cabinet, two separate half-size cells intervening between alternating top-open cells.

$89 Million Sales Set New Record for M-H

MINNEAPOLIS — On sales of $89,306,433—largest in the company's history—Minneapolis-Honeywell Regulator Co. earned $3,239,676 in 1944, after provision of $11,023,148 for income taxes and $425,000 for contingencies arising from war conditions. Net income for 1943 was $2,908,852.

The 1944 net income was equivalent, after preferred stock dividends of $305,383, to $2.36 a share on the present 1,243,800 shares of common stock, against a 1943 figure of $2.15 a share adjusted to present capitalization. In March, 1944, common stock outstanding was increased from 621,900 shares by a two-for-one split.

Westinghouse Re-names 2 Radio Divisions

PITTSBURGH — More descriptive names have been selected for two radio divisions of Westinghouse Electric & Mfg. Co., according to Walter Evans, vice president in charge of radio, radar, and electronics activities.

The former Radio Division now becomes the Industrial Electronics Division, continuing under the management of C. J. Burnside; the Radio Receiver Division becomes the Home Radio Division, continuing under Harold B. Donley.

Permanent quarters for the home radio unit have now been established in Sunbury, Pa., following the temporary location in Baltimore, it was also announced.

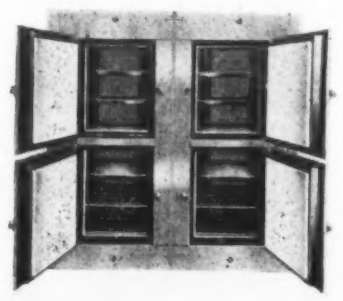
Servel Employes Get First Chance at Surplus Items

EVANSVILLE, Ind. — Servel, Inc., is giving its employes first chance at war surplus materials. Hoping to sell all of its surplus to its own employes, the company is disposing of small quantities daily by this method.

Such things as tools (ordered for use by the company but declared obsolete because of engineering changes) muffin tins, Scotch tape, bolts, nuts, and other items are being offered to the employes.

Originators of The Cross Fin Coil
LARKIN
Refrigeration Products
LARKIN COILS, INC. 519 Memorial Dr. S.E. Atlanta, Ga.

ADD THIS TO YOUR NOTES ON LOW-TEMP. EQUIPMENT . . .
Wilson ZEROSAFE
For the Retail Storing and Dispensing of Frozen Foods
DEFINITELY NOT EXPERIMENTAL . . .
Wilson ZEROSAFE Reach-Ins for the Storing and Dispensing of Frozen Foods were designed with the same engineering know-how that has distinguished the Wilson ZEROSAFE Reach-In Farm Freezer . . . Wilson has solved Freezing and Storing problems since 1939.
BIG IN CAPACITY . . . SPACE-SAVING . . . EASY-TO-USE . . .
"EXPANDABLE" . . . FIRE-SAFE . . . MODERN
Models in sizes and multiples of sizes to meet every conceivable need.
WILSON CABINET CO. SMYRNA DELAWARE



Wilson ZEROSAFE Reach-In Sectional Model RL-60 for the Storing and Dispensing of Frozen Foods.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" $2.50 per insertion. Limit 50 words.
RATES for all other classifications $5.00 per insertion. Limit 50 words.
Advertisements set in usual classified style. Box addresses count as five words, other addresses by actual word count.
PAYMENT in advance is required for advertising in this column.

EQUIPMENT WANTED

USED AND surplus refrigeration and air conditioning equipment is in great demand. Wire us for speedy action and the highest cash price. Parts, units, complete systems purchased anywhere, all sizes and any condition. E. M. FAIRBANKS CO., 2548 E. Tremont Ave., New York City 61, N. Y.

WILL PAY top dollar for new or used 3, 5, and 7½-hp. condensing units, "Freon" or Methyl. Call, wire, or write, LEE CO., 2554 Kensington Ave., Philadelphia 25, Pa., Nebraska 7300.

WE NEED some new or used meat display cases 6, 8, 10, or 12 ft. Write, wire, or call. Also scales, slicers, choppers, and store fixtures. HORRELL REFRIGERATION, 1416 Church St., Nashville 3, Tenn.

POSITIONS AVAILABLE

REFRIGERATION shop foreman. $75 weekly, 48 hours, New York City. Box 1671, Air Conditioning & Refrigeration News.

REFRIGERATION ENGINEER for test and research work on evaporators. (Rapidly expanding company located in Chicago, Ill.) Outline education, experience, and salary expected. Capable of discussing refrigeration problems with customers through personal contact and correspondence. Box 1687, Air Conditioning & Refrigeration News.

WANTED: DESIGN engineer for refrigerant flow control valves. Permanent position with progressive manufacturer. Midwest. Give qualifications in first letter. Box 1690, Air Conditioning & Refrigeration News.

REFRIGERATION ENGINEER well grounded in the design of "Freon," methyl, and sulphur equipment. Knowledge of control design would be especially valuable in expansion valves, suction pressure valves, switches, etc. Excellent opportunity with well established manufacturer. Box 1692, Air Conditioning & Refrigeration News.

WANTED: Experienced refrigeration man (located in New Jersey or New York) as Service Supervisor and Despatcher. This is a permanent position with bright prospects for the right man. Must have thorough knowledge of commercial refrigeration and executive ability. Box 1696, Air Conditioning & Refrigeration News.

SALES MANAGER. Nationally known automatic control manufacturer has opening for sales manager of refrigeration control division. Must have refrigeration engineering background. State full details, education, work background, and salary first letter. Interview may be arranged. Box 1693, Air Conditioning & Refrigeration News.

APPLICATION ENGINEER: Wanted by Midwestern manufacturers of heat transfer equipment. Must be familiar with technical and practical applications of refrigeration and air conditioning products. This position essential to War Effort and permanent future in postwar. Write advising full qualifications, experience, and salary expected. Box 1694, Air Conditioning & Refrigeration News.

SALES MANAGER, or man with sales experience with ability and ambition to become sales manager. Successful manufacturer of controls for commercial refrigeration and domestic oil burning equipment. Experience valuable but unnecessary if able to understand mechanical, technical products. Now manufacturing many prewar products vitally needed in war effort. Box 1695, Air Conditioning & Refrigeration News.

SAN DIEGO, California. Wright Refrigeration Service requires first class service men at $1.25 per hour with time and half over 40 hours per week. Steady work, lots of overtime, and the best climate in America. WRIGHT REFRIGERATION SERVICE, 1337 India St., San Diego, Calif.

HAVE YEAR around positions for A-1 service men in Chicago. Salary: 60% of labor and 10% of parts. Labor rates $3.95 first hour, $2.60 per hour thereafter. Give full particulars first letter. Box 1698, Air Conditioning & Refrigeration News.

COMMERCIAL REFRIGERATION repair or installation men. Only experienced need apply. Highest pay in the industry. Year around work. Apply at 6219 Lincoln, Detroit 2, Mich.

POSITIONS WANTED

EXECUTIVE ENGINEER with unusual record of achievement as Manager, Sales executive, and engineer. Desires connection where this unusual combination of abilities can be used to best advantage. Wide experience in all phases of refrigeration, except household, and includes knowledge of refrigerator business. Box 1688, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

500 RE-MANUFACTURED Frigidaire and Kelvinator ½, ¾, 1, and 1½-H.P. air cooled condensing units with new condensers and new single phase 110/220 60 cycle motors. 2 to 12 holes ice cream cabinets. Write for list and prices. EDISON COOLING CORP., 310 East 149 St., New York 51, N. Y.

VICTOR Ice Makers 2,000 pounds capacity. Cafeteria water coolers. Two-hp. American Marine Motors 230 volt D.C. All new. Retitled equipment. No priority required. Box 1685, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

USED double duty display cases, no priority. Good condition, all-porcelain, equipped with coils and platters. Used General Electric condensing unit with 1-H.P. D.C. motor, late model, $110. New General Electric equipped 6-can milk cooler, $260. Porcelain reach-ins, steel walk-ins, freezer cabinets. JORDON REFRIGERATOR CO., 235 North Broad St., Philadelphia 7, Pa.

MEAT DISPLAY cases: Viking, 10 ft. porcelain, double duty with coil, $450; Tyler 10 ft., porcelain, single duty with coil, $225; Viking 10 ft. porcelain, single duty, $200; Remanufactured air and water cooled condensing units ¼ to 2 hp., prices upon request. ARCTICAIRE REFRIGERATION CO., 3939 Broadway, Kansas City, Mo. Tel. We. 9667.

DRY BEVERAGE coolers 15 to 46 case capacity, slanting, sliding doors, fast cooling, can be used for food storage or bottle goods. Streamlined. New streamlined freezers, all steel, 12 cubic foot, remote or self-contained. Reach-ins 16 to 80-cu. ft. capacity. Immediate shipments. Low prices. ACECO, Las Vegas, Nev.

BUSINESS OPPORTUNITIES

FOR SALE: one story, fully equipped refrigeration shop and building, approximately 6,000 sq. ft. cement floor, drains, modern offices set up for volume repair or light manufacturing, location vicinity Michigan Avenue district near south side, Chicago, Price $15,000, ⅓ down, balance terms. GARDEN CITY ENGINEERING CO., 100 N. LaSalle St., Chicago 2, Ill.

WANTED to buy: The best refrigeration and air conditioning business available in a town of 25,000 to 100,000. Especially interested in locations in Florida, North Carolina, California, or Texas but will consider good propositions elsewhere. Give all details in first letter. Box 1691, Air Conditioning & Refrigeration News.

REFRIGERATING ENGINEER
Prominent Midwest manufacturer has immediate opening for a Refrigerating Engineer, preferably with experience on domestic absorption units, to work on post-war research.
Box 1697
Air Conditioning & Refrigeration News

For: TRUCKS, LOCKERS, COOLERS, COUNTERS, CABINET CONVERSIONS *use:*
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70 Big Trailer Units Pre-cool 'Reefer' Loads of Produce for Shipment to Army

SANGER, Calif. — Seventy ammonia-compressor trailer units including complete forced refrigeration equipment are being used to protect Army and Navy fruit and vegetable shipments from this San Joaquin Valley center to eastern quartermaster shippers.

Operated by General American Pre-Cooling Corp. with offices located near Sanger, the trailer and truck units are being pressed into service for grapes, celery, lettuce, strawberries, asparagus, and many other food items which must travel across the country to reach embarkation shipping points. All such cars must arrive in perfect condition to meet military specifications, and thus most current valley shipping contracts include the use of pre-coolers in making up every car.

The General American system has proven invaluable in reducing the load temperature of each car to 30° F. before it is iced and coupled on to a freight train for the journey east. In the past six years the company has developed its facilities to the point where it is now possible to pre-cool 30 freight cars simultaneously at the shipping docks of large fruit packers where an output of 25 cars a day is not unusual.

Used for the pre-cooling operation are both single-unit refrigeration compressors mounted integrally on 2-ton trucks, or much larger three-unit types mounted on 19-foot trailers and pulled by 5-ton Diamond T truck tractors.

A typical unit is a three-blower model mounted on an under-slung trailer frame. Refrigerative power is furnished by a 60-ton ammonia compressor coupled to a 100-hp. butane-powered engine housed in the center of the trailer. At the front of the unit is a large return chamber which also houses condensing coils and controls for operating the power source and compressor. This is drawn into a freight yard and set up conveniently to reach each freight car.

THREE COILS USED

The compressor furnishes refrigeration by piping ammonia to each of three evaporative coils housed in light metal chambers, and detached from the trailer itself. Each coil is self-contained, with a 5,000 c.f.m. blower, Thermeck coils in a four-bank arrangement, and a damper system for controlling chilled air.

All air forced into the car is recirculated at minimum humidity. Each of the three blower units is connected to the car interior by means of "split" canvas ducts, divided horizontally at the center. Air chilled to 18 to 20° F. is forced in along the top section, and is returned to the blower unit along the lower section of these flexible ducts, which may be connected at either the loading door or by special inserts in the freight car side, depending on the type. By utilizing recirculated dry air and keeping waste to a minimum, each cooler does a far more efficient job than the old system of using ice and fan blowers, standard until the mechanical pre-coolers came into use. Moreover, an even temperature of around 30° F. supportable with ice in transit is insured where the old ice system caused varying temperatures and much load spoilage.

EMERGENCY UNITS

Where single cars are involved or there is an emergency cooling job, the company has several "single unit" coolers mounted on individual trucks. These are likewise equipped with ammonia compressors, but have blower and coil housings on the truck immediately behind the cab. Using smaller flexible ducts, these can handle almost any smaller load in freight cars or refrigerated trucks.

By converting the former gasoline engines on each unit to butane, General American has cut costs sharply and eliminated a lot of carburetor maintenance which used to keep four or five units out of service at a time.

Concentrating on larger shippers during each successive season for various fruits or vegetables, General American has to date cut spoilage down to nothing. The pre-cooling units are kept on a tight operating schedule, booked for use by advance salesmen calling on packers a few weeks before the season begins. They are rushed at speed-limits from one plant to another.

Time required to cool various types of fruit or produce ranges from two hours for strawberries to 16 or 18 hours for peaches or pears. Cars can be iced before, during, or after pre-cooling.

As another service, General American has also constructed a quick-cooling tank for celery and lettuce shippers for cooling direct at the packing floor. Mounted on a 36-foot trailer, this consists of a fabricated steel and plywood shell over a slow-moving conveyor belt, completely enclosed in a water-tight tank. The tank measures 36 by 8 feet, 5 feet high.

Celery is loaded on extensions of the center conveyor belt which moves through the tank, and requires 18 minutes for the trip. During this time it is sprayed with water chilled to 34° F. by four coils submerged in water tanks also mounted on the trailer. Sixty tons of ammonia refrigeration provides ample cooling power. Use of this unit has helped to cut celery and lettuce spoilage to an absolute minimum in several San Joaquin shipping plants.

Use of automatic thermostats and engine controls has made it possible to operate each unit with one operator and one helper, in place of the several formerly required in using ice and blowers.

Brown & McGee Open Jackson, Mich., Firm

JACKSON, Mich.—Brown & McGee Refrigeration Co. is the name of a new commercial refrigeration sales and service firm opened here by Fred Brown and George McGee.

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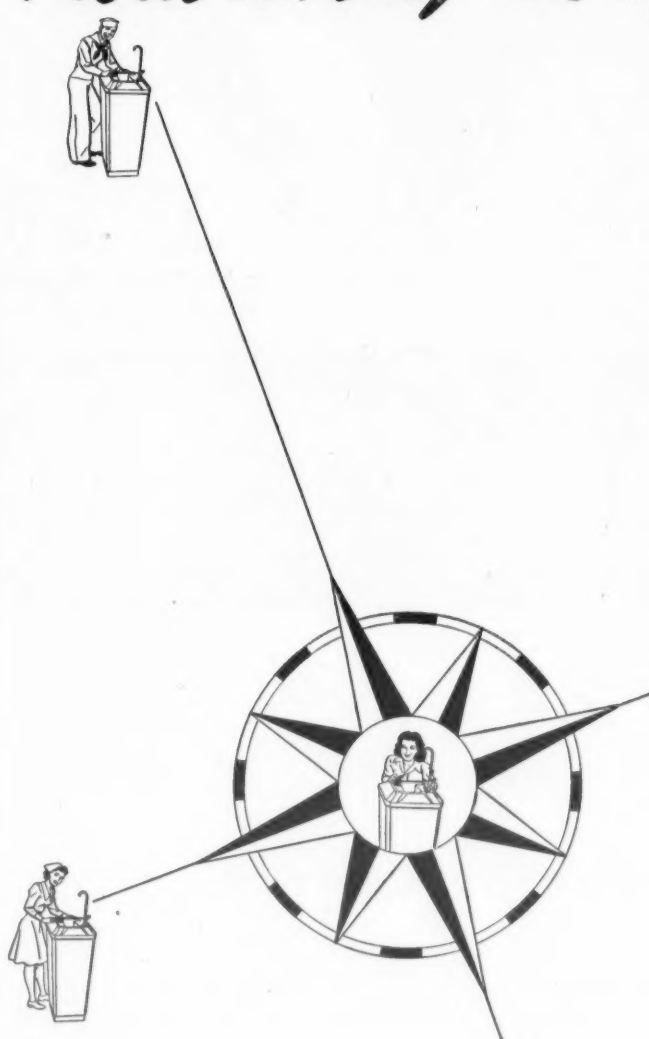

Wherever people gather, or are employed, that's what they say... and they insist on having that good drink of water! Their comfort, and the safeguarding of public health, create the almost limitless market for SUNROC WATER COOLERS.

With an unequaled record of over eight consecutive years as sole supplier of water coolers to the Government, from the General Schedule of Supplies, Sunroc now enters the national market. Production-wise, and promotion-wise, it is geared for the job. Its distributional set-up is being completed.

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Proposed L-38 Changes Would Eliminate WPB-547 Applications; Restrict CMP-9A's

(Concluded from Page 1, Column 3)

Frank Millham, deputy director of the General Industrial Equipment Division, informed the committee.

He pointed out that this will probably mean that manufacturers will have to divert some materials from less essential civilian items and use them in the manufacture of more essential civilian items and war refrigeration equipment.

Increases in material allotments to individual plants within the industry will not be possible during the second quarter unless the plant receives a large war order, and even under such circumstances, substantial increases are doubtful unless production of copper and steel are substantially increased, Mr. Millham said.

There has been little change in the fractional horsepower motor supply situation to affect the refrigeration industry, Robert Hanna of the Fractional Horsepower Motor Section informed the committee. Effective use of facilities for production of motors has been reduced, Mr. Hanna said, as a result of manpower shortages, and it is expected that within the near future some loss in production may result.

Other factors that have tended to reduce the effective use of motor production facilities have been lack of fuel, transportation embargoes, and reduced supplies of certain copper products.

Reports received by WPB indicate that inventories of "Freon" are at approximately the level WPB wishes to maintain as a safety margin against unforeseen developments, the committee was told. Furthermore, WPB officials said, production of "Freon" has been maintained at high levels and has met expectations of the Refrigeration Section.

WPB officials discussed the condensing units supply problem with members of the committee, pointing out that many essential users of such units are able to place only low-rated (AA-3) orders on producers. At the same time, officials said, producers' order boards are filled with AA-1 and AA-2 orders, some of which are not scheduled for uses as essential as the AA-3 orders.

The Advisory Committee expressed the belief that use of ratings for maintenance, repair, and operating supplies have been abused in some instances, and that in others the Controlled Materials Plan "round-out-a-line" provision has been misused, resulting in the large number of high-rated orders. The committee suggested that WPB take steps to remedy this situation.

In connection with the proposed amendment to Order L-38, the general refrigeration and air conditioning order, the following points were brought out:

1. It is proposed that production restrictions of the order remain unchanged.

2. It is proposed that the order be modified to indicate that any increases in production of equipment for civilian use will be brought about under the spot authorization (Priorities Regulation No. 25) procedure, rather than through modification of quotas in the order.

In this connection, the committee expressed the belief that some spot authorizations have been granted to refrigeration producers without adequate screening, and recommended that WPB take steps to tighten up its review procedure in connection with such authorizations.

3. It is proposed that provisions requiring that orders for refrigeration and air conditioning equipment be rated AA-5 before purchasers can place them and manufacturers accept them remain unchanged.

It is further proposed that reference to the use of forms WPB-541 and WPB-547 by jobbers and dealers for building inventory be eliminated from the order. In some rare instances, WPB-547 applications for preference ratings on these forms will be honored to permit the building of inventories.

For example, if a dealer's store burned down, destroying his inventory, WPB might grant ratings on WPB-547 to permit him to build a small inventory for his operations. WPB-547 may still be used for ratings for repair parts inventory, exclusive of condensing units.

4. It is proposed to include in the order a provision to prevent the use of preference ratings assigned for authorized production schedules (CMP) to place orders for equipment —particularly condensing units— merely for redistribution where the person applying such a rating does not process the item which he has purchased.

This provision is designed to prevent the up-rating of purchase orders for certain types of refrigeration equipment through use of the CMP rating patterns that in the case of most manufacturers are higher than the ratings which purchasers serve on them.

Furthermore, it will tend to eliminate certain inequities that have existed as between dealers and jobbers, the latter being required to extend their customers' ratings while dealers have been permitted to place orders on manufacturers who in turn have placed orders for resale using their CMP rating pattern, pointed out WPB.

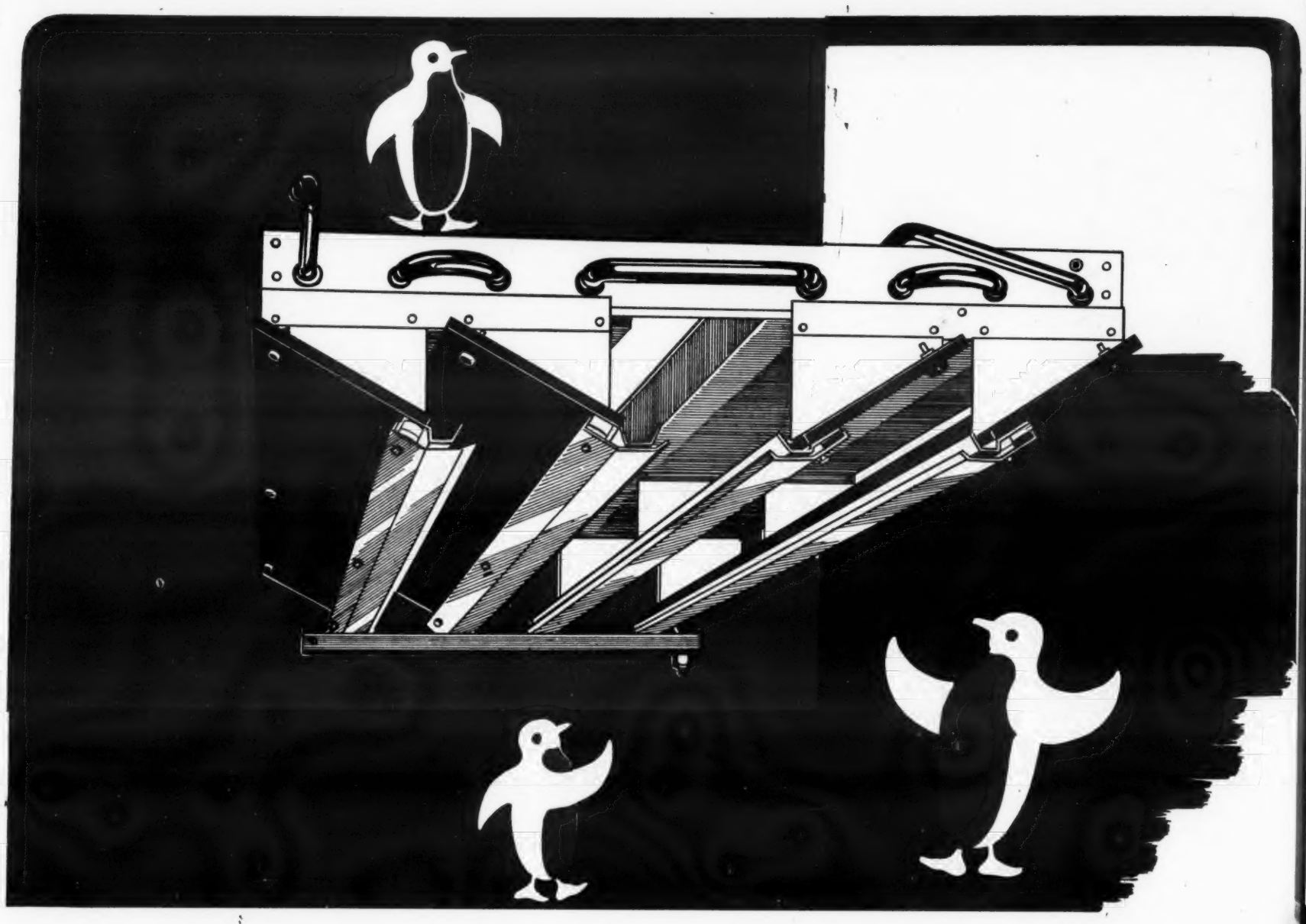
5. It is proposed to re-emphasize that CMP-9A ratings may not be used to get parts to modify or convert any new or used refrigeration or air conditioning system from one type to another. For example, such ratings could not be used to obtain parts with which to convert an ice cream cabinet into a home freezing unit.

No Change in Norge Calif. Distribution

A news story in the March 12 issue of the News bore the misleading headline "3 Detroiters Form Norge Outlet in Los Angeles."

We have been informed that the corporation referred to is not, and will not, be a distributor or dealer for Norge products. It was established solely for the purpose of protecting the Norge name for the benefit of Norge distributors and dealers in California.

Leo J. Meyberg Co., Norge distributor for 14 years, continues as Norge distributor with headquarters in San Francisco and Los Angeles. Imperial Hardware Co., Inc., continues as distributor for the Imperial Valley.



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